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**I.—RICHARD AVENARIUS
AND HIS GENERAL THEORY OF KNOWLEDGE,
EMPIRIOCRITICISM.**

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(Translated by H. BOSANQUET.)¹

• WHEN Richard Avenarius, Professor of Philosophy at the University, died at Zürich on 18th August, 1896, only a very small circle of philosophers and pupils knew what a powerful mind had been snatched from amongst them; for he was a man whose unique thought was unappreciated by his contemporaries solely because it was unique, and diverged too much from what was previously familiar.

Concerning the life of this philosopher I will merely state briefly that he was born at Paris, 19th November, 1843, that he first devoted himself (by his father's wish) to the book trade, but afterwards studied—for the most part philosophy—at Zürich, Berlin, and Leipzig; in 1876 he attached himself to the University of Leipzig, and in 1877 was called as Professor of Philosophy to Zürich. In 1877 he instituted, with the help of C. Goering, M. Heinze, and W. Wundt, the *Vierteljahrsschrift für wissenschaftliche Philosophie* and continued it until his death, latterly with the help of M. Heinze and Al. Riehl.² In addition to several smaller contributions

¹ For certain awkward expressions Mrs. Bosanquet is not responsible. Without them it is impossible to give correct rendering of the peculiarities of the terminology of Avenarius.

² The *Vierteljahrsschrift für wissenschaftliche Philosophie* is now edited by Fr. Carstanjen and O. Krebs, with the help of E. Mach and Al. Riehl.

to this periodical, Avenarius published *Ueber die beiden ersten Phasen des Spinozischen Pantheismus und das Verhältniss der zweiten und dritten Phase, nebst einem Anhang über Reihenfolge und Abfassungszeit der älteren Schriften Spinoza's* (Leipzig, 1868); *Philosophie als Denken der Welt gemäss dem Prinzip des kleinsten Kraftmaasses, Prolegomena zu einer Kritik der reinen Erfahrung* (Leipzig, 1876); *Kritik der reinen Erfahrung* (Leipzig, 1888-90); *Der menschliche Weltbegriff* (Leipzig, 1891).

In his principal work, the *Kritik der reinen Erfahrung*, Avenarius first makes the attempt to describe all theoretical activity, in itself and in its relation to practical activity (which he also describes more generally) as conditioned by analytically determined changes of the nervous central organ. In this way he arrives at a formal and general theory of human knowledge and action; he endeavours to limit scientific philosophy critically to the descriptive definition of the general idea of experience in its form and context. The following pages, composed at the request of the Editor of MIND, aim at giving a short survey of the new theory, without pretending to exhaust the rich material, or to deal with questions raised in recent discussions.

The best proof of the importance of a theory must be its fruitfulness. But a system so strikingly original as that of Avenarius, and starting from such completely new points of view, contains the promise of great fruitfulness in the mere fact that it directs us into new ways, opens out new perspectives, and shows how it is possible to get quite a new light upon the old problems which are constantly being turned over and over in the same way. This must always have a refreshing and stimulating effect.

Prof. Max Müller has remarked in his *Gifford Lectures* that the human mind has been slowly compelled to admit its entire incapacity and ignorance as regards the relations of the noumenal and the phenomenal. Avenarius has once more removed this agnosticism. He showed that this incapacity and ignorance existed only because the whole problem had been wrongly stated, and that Philosophy had run into a *cul-de-sac* from which she had so far vainly sought an issue. And thus he constructed a theory which not only satisfied the demand that it should be in itself theoretically valid and logical, but which at the same time harmonised with practice and with the common-sense view of the universe.

Avenarius called his theory "Empiriokritizismus". What does this name mean?

The elements from which the word is compounded are Empiricism and Criticism. As in natural science, and to

some extent also in the art of medicine, philosophical empiricism will accept nothing but experience, and will build upon no other basis; but it forgets to determine accurately the concept of experience from which it starts. The "critical empiricism" which, since Hume, has set about its work more cautiously, looks for the universal element in experience; it tries to find how far we can attain through experience to universal and necessary knowledge, or how far we are forced, by a speculative construction upon the basis of experience, to supplement it by logical inferences. "Criticism," finally, has for its aim, since Kant's time, to establish critically the possibility of knowledge, no matter whether it leads us to a positive or negative result.

Empiriocriticism, on the other hand, takes up the position that everything is experience when it has been stated as experienced by an individual—though it may be that primarily it is only experience for this one individual in question. (If, *e.g.*, a child states that it has seen angels, then the angels are an experience for the child.) But then we investigate the difference between this concept of experience which is valid for the individual and the concept of experience which is universally valid (*interindividuell gültig*). Thus empiriocriticism also approaches experience critically, but it does not determine its concept of experience beforehand; it begins by admitting everything as experience, provided only that it is at the moment predicated and characterised as experience by an individual. It does not arbitrarily limit its sphere, but says: If I am to approach experience critically, then I must include in the object of my investigation all predications which contain an experience; I must not pre-judge the question of true and false, for the decision as to that can only follow from the theory.

Empiriocriticism is then not empiricism; moreover, it approaches its task purely speculatively (in the good sense of this much-abused word), although it builds entirely upon the results of the natural sciences. This speculative character may be frankly conceded without fear of confusion with the speculative method of metaphysics. The speculation in the empiriocritical theory does not extend to the contents of knowledge and experience, but to their universal form. Only the speculative investigation of the contents of knowledge has proved itself to be unfruitful and unscientific.

The *Kritik der reinen Erfahrung* is not only a theory of experience, but, inasmuch as experience is a species of

the genus knowledge, it is also a theory of knowledge. And while in all special theories of knowledge philosophers endeavour to develop what in particular they mean by knowledge, Avenarius, on the contrary, aims only at presenting the common normal element in all such theories, the universal norms according to which individuals determine Being and Knowing. Ultimately, therefore, the *Kritik der reinen Erfahrung* is not only a general theory of knowledge, it is also a general theory of human norms.

What, then, is the standpoint from which the *Kritik* starts? It is not that of a preassumed and dogmatically determined experience, upon which is based the critique of all philosophical or other scientific or prescientific concepts. On the contrary, it is so general that Avenarius cannot describe it better than by saying: my standpoint is purely local. He includes no other standpoint than that where he stands, purely locally in the midst of his surroundings. As Greek tradition says of the philosopher, he stands in the throng of the market-place, not as buyer or seller, but as beholder of all the traffic; he passes through distant lands and mingles with strange peoples, not for the sake of any business, mean or lofty, but in order that he may observe.

We must, however, have some presupposition from which to proceed. That to this presupposition and to its being rightly presented great importance attaches, will be clear to every philosophical reader; everything depends upon the presupposition; if this the foundation of the building does not stand firm, the whole erection will totter.

In stating his presupposition Avenarius begins by banishing from it everything which belongs to particular and specific philosophical tendencies, and which may be regarded as variations of a proposition originally accepted by all men. Thus he proceeded to abstract what had been first introduced into his own view of the universe by the fortuitous and changing influences of life and school, and obtained the following result:—

"I, with all my thoughts and feelings, found myself in the midst of an environment. This environment was compounded from manifold parts which stood to each other in manifold relations of dependence. To this environment belonged also fellow-creatures with their manifold statements; and what they said for the most part stood again in a relation of dependence to the environment. For the rest, my fellow-creatures spoke and acted as I did; they answered my questions as I answered theirs; they sought after the various parts of the surrounding or avoided them,

changed them or sought to maintain them unchanged; and that which they did or left undone they described with words, and gave reasons and purposes for deed and omission. All this they did even as I myself; hence I thought not but that my fellow-creatures were beings such as myself, and that I was a being such as they."¹

Starting from this first natural idea of the universe, Avenarius arrived at the fundamental presupposition, which he has placed at the beginning of his *Kritik der reinen Erfahrung*, and which runs as follows: "*Every human individual originally accepts over against him an environment with manifold parts, other human individuals making manifold statements, and what-is-stated in some way dependent upon the environment*" (*Kritik d. r. E.*, vol. i., p. vii.).

The presupposition of every science is an assumption that cannot be proved. But just because it cannot be proved, it must, if it is to serve as the presupposition of a scientific system, be privileged as an irrefragable axiom; hence it must not only be as simple and natural as possible, must not only be theoretically correct in itself, it must also agree, both in itself and in the consequences to be deduced from it, with practical life. In one word, it must be not only logically tenable but also biologically tenable and necessary. However differently our views of the universe may shape themselves in detail, they must be based upon this presupposition as their common and most frequently recurring element. And just because it includes only this common element, it will have a universality which differs only from universal validity because, when Psychologies or Philosophies have changed and troubled their view of the universe, individuals no longer recognise the presupposition which is actually a necessary element of their original view of the universe. But in its fundamental presupposition Empirio-criticism is not concerned with that which has developed itself for particular individuals as what to them is logically tenable, but only with such elements as are most often recurrent in all points of view, and ultimately prove to be alone *biologically* tenable.

Does the presupposition with which Avenarius heads his work satisfy these conditions? Yes! It is the common element most often recurring in all views of the universe; all are originally based upon it, it belongs to no one specially, it is undogmatic, theoretically tenable and in harmony with practical life.

¹ *Der menschliche Weltbegriff*, by Richard Avenarius, p. 4. Leipzig: O. R. Reisland, 1891.

It may be objected here: How can that be undogmatic? it is the view of a naïve Realism, and how can it also form a fundamental aspect of Idealism? Here we might answer: Even the most advanced idealist originally accepted his environment as an actually-existent, or as he is wont to call it "real"; for how would it be possible to designate anything as "appearance," etc., or as "non-existent" if he had not originally found it confronting him? Nevertheless Avenarius intentionally omits from his presupposition every specific characterisation of the environment, such, for instance, as is undertaken even by a naïve Realism. The environment is not taken either as "phenomenon" or as mere "appearance," nor as a "middle" between "being and not-being" or as "not-being"; but then neither is it taken as "real," "actual," or "true". For the plain man the characterisation as "actual," "real," does not supervene until he has busied himself with the opposite concept of a "not-actual" or "unreal"; until then, the universe for him is simply there, and he does not reflect upon the specific characterisation of this "being-there".

Thus the empiriocritical presupposition is itself a ground for determining the relation of the "I" to the environment in such a way that both are present as common and inseparable elements. Avenarius says: "We find not only our environment but also ourselves. Our 'I' is found to be present just as much as the environment." This interconnexion and inseparability of the "I" and its surrounding, this essential and inseparable association and homogeneity of the two co-ordinated values, is described by Avenarius as the "*empirio-kritische Prinzipialkoordination*".

This co-presentation of the two members, the corporeal presence of the human being and the spatial presence of the object, other modern philosophers include in the philosophical concept of the "I"; but then they either end in subjective Idealism, which is a flat contradiction to practical life and common-sense intuition, or they give a meaning to the word "I" which it does not possess in our ordinary speech, and in so doing merely add to the confusion of tongues in the sphere of Philosophy. Is it not better to strike out an entirely new conception, such as that of essential co-ordination? It may be inconvenient—as we have to form this conception for ourselves—but it is exact, easy to handle, and fruitful.

Just as other philosophers have regarded the assumption of a soul as the emanation of some special theory, so Avenarius regarded such assumptions as are implied in the

phrase "immediate datum of consciousness". To start from "consciousness" or from "thought" as immediately certain was for him to start from the end. He would have no starting-point except the empiriocritical presupposition. Upon this alone he constructs his theory as follows:—

He analyses the presupposition and finds that it contains three members: (1) the environment and its component parts; (2) fellow-creatures and the self; (3) human statements. Here it becomes necessary to make the reader acquainted with several symbols introduced by Avenarius. Every value which is accessible to description, in so far as it is assumed to be a component part of the environment, he denotes simply by R. In this sense Avenarius speaks of things in space, of physiological stimuli, as R-values. On the other hand, every value accessible to description, in so far as it is accepted as the content of the statement of another human individual, is denoted by E. The contents of statements are E-values.

Finally, that part of the more comprehensive system of nervous central organs in which are collected the changes which issue from the periphery, and from which issue all changes to be passed on to the periphery, is called SYSTEM C (central system). The more exact anatomical and physiological determination and limitation of this system Avenarius purposely reserves, because it has not yet been sufficiently ascertained by the exact sciences, and also because he has no need of it for his purpose.

If, now, we inquire in what manner the statement-values, or as we may say, the E-values, are conditioned by individuals and by the environment (that is, by the R-values), we find that the statements are conditioned only *indirectly* by the environment and its changes, but *directly* by individuals, and more especially by their nervous central organ, by System C and its varying states. But if this is the case the necessity becomes clear of first analysing these varying states of the nervous central organ. This is done in the first volume of the *Kritik der reinen Erfahrung*.

The human individual is assumed to be such that it is able to maintain itself within certain limits. This relative maintenance of the individual will be most closely connected with the maintenance of the most central system, and this in proportion as the System C is developed according to its functions. Here there is no attempt to attribute to System C anything like a *striving to maintain itself*. In pure description, without any admixture of metaphysical anthropomorphism, we can never say an organ strives for something—either for

stability or for change. We simply affirm the fact that system C, when subjected to the stimuli which crowd upon it, does not immediately perish, but maintains itself for a definite time, not absolutely but with diminutions of its maintenance; and after having affirmed that, we can only state the conditions of the maintenance.

The stimuli from the environment, the R-values, are primarily to be regarded as threats, as disturbing influences, as occasions capable of breaking down the maintenance of system C, and thus we find two values: (1) that of a *disturbance* of the vital maintenance, and (2) that of a re-approach to the (ideal) maintenance-maximum.

The greatest conceivable vital maintenance-value must not be identified with anything like the greatest conceivable pleasure, or the greatest development of power. Its significance is not psychological, but only logical, and as a *constant* value is unattainable in life. Psychologically it may be compared with the Nirvana of Buddhism, which is explained as the absolute cessation of the bodily and mental activity which is conjoined with personal existence, as the absolute rest which the Oriental takes to be the highest pleasure. In the *purely logical* significance, in which alone empirio-criticism uses the value "vital maintenance-maximum," it signifies only an ideal point, about which the life of the organism moves in constant oscillations, like the indifference-point between pleasure and pain, which also has only a logico-mathematical significance.

Now, vital disturbance is one of those changes in the state of the nervous central organ which we have noticed above, and by which the E-values are directly conditioned. But this change may be more accurately described; it has a special character. If I break a stick, that is changing it; but the stick never becomes whole again. It is different with the nervous central organ. When changes take place in it there are generally present also the conditions which annul the change. Vital disturbance is for the most part gradually annulled; then the system C approximates again to its maximum-maintenance. Thus the change which we have here differs from that in the stick inasmuch as it consists in an oscillation between two phases, in deviation from a preliminary value and in approximating to it again. Thus we have to do with a *process* of change which is itself compounded from various changes.

All R-values, the totality of all physiological stimuli, condition the deviations from the vital maximum of maintenance. But what are the conditions of the annihilation of

this disturbance, *viz.*, of the re-approach to the maximum of maintenance?

The environment, which is primarily hostile, must nevertheless be regarded also as favourable to maintenance, as *maintaining*, in so far as it is considered as *training* the individual in habitual modes of behaviour; and this concerns not only the environment in particular factors, not particular R-values, but all together. The same stimuli which condition a vital disturbance, contribute also to maintenance, and *vice versâ*. *Work*, for instance, is not an exclusively *destructive* factor; while, on the other hand, *nourishment* is not an exclusively *maintaining* factor. This is proved by the fact that an organism degenerates and finally perishes just as much when it is merely nourished (without being subjected to work), as when it merely works (without being also nourished).

Our maintenance is then conditioned by an equilibrium between a customary work-process, and a customary nourishment-process. On the other hand, by the preponderance of the one factor over the other, *viz.*, by an alteration in the amount of exercise of one of the two factors, a deviation of system C from this equilibrium of the maintenance-maximum is given, and this deviation Avenarius calls a *vital-difference*.

Now this is a very important conception, for by placing our whole life with all its action and thought in relation to the vital maintenance-maximum, we can comprehend this action and thought also in its totality as depending upon such vital-differences and their annulment. "Life" is not inaction and rest, but movement; and movement is here equivalent to continual oscillation about an ideal point of rest.

Thus the process of change in the nervous central organ begins with the vital-difference; with the annulling of the vital-difference the process of change in each particular case attains its end. All the changes which lie between this beginning and end follow each other immediately; they form a series, which Avenarius calls the *vital-series*.

We will first consider the case in which a vital-difference arises as follows: A uniform increase of nourishment may take place in some individual, and may then be annulled by an equally uniform increase of work. Both must be habitual and familiar to the individual in question, and both together form a vital-series of the first order.¹ Thus the vital-series of the first order would be composed in this way:—

¹ For the sake of brevity I may here disregard the fact that Avenarius particularises and describes a third special and concluding term in the series.

(1) *Habitual increase of nourishment*; (2) *Habitual increase of work*.

Let us now see what significance that has for our action and thought. It is unnecessary to deal further with the process of nourishment (I may even assume it to take place during the night's sleep); then I have only to explain more in detail in what the work-process for a vital-series of the first order consists.

Since this work-process is taken to be completely uniform, habitual and familiar, its chief characteristic will be that it excites no attention from us, that we are not conscious of it. Such a uniform familiar increase of work is given to us in our daily movements, in the amount of light, sound, touch and other stimuli which are daily necessary to us. We arise from our couch in the morning strengthened and refreshed by sleep, provided, as we are accustomed to say, with a certain amount of elasticity; or, to speak in the more accurate language of empiriocriticism, provided with a certain uniform habitual increase of nourishment. In this alone is already contained a vital difference of the first order, a deviation from the maximum of maintenance. Now in so far as system C maintains itself, this demands to be annulled, and for this purpose all the accustomed stimuli of the environment form conditions for working it off.

Here belong even such uniform and familiar work-values as the home as such; the size of the room, the colour of the walls, the ornaments on the wall, domestic arrangements (in space and time), our parents as the confidential friends with whom we share our experiences, the tacitly assumed understanding with our fellow-men, their estimation of us, in fact all the thousand details of manners and intuitions which we have in common with our surrounding, details which are really active at every moment, but to which—so long as they are active—we do not attend at all. In all these we have most important work-values, which constitute our "ordinary," if you like "philistine," life, and to a large extent also the "standard of life," work-values which we would not and could not do without, but of which we are not generally conscious until they are absent.¹

Let us now pass to the *second case*.

It will not always happen that a given familiar increase of nourishment will find for its compensation just that increase of work which is *suitable* and also *familiar*. Indeed it hap-

¹ See my introduction to the *Kritik d. r. E.*, under the title: "Richard Avenarius' biomechanische Grundlegung der neuen allgemeinen Erkenntnistheorie," München, 1894 (p. 119 ff.).

pens only too often in life that an increase of work is given which has *not* the value of a familiar one. This unfamiliar increase of work, then, has the significance of a *variation of work*.

With this variation of work is introduced a vital-difference of a higher order, the vital-difference *κατ'ἐξοχήν*. In so far as system C (and with it the individual) maintains itself, we must think of it as passing to definite changes of itself, by means of which the variation in work is annulled; and these changes will continue until a change supervenes, such that by it system C again attains for the moment to its vital maximum of maintenance. That these changes in system C are of a most manifold and complicated kind is a matter of course. That need not prevent us from comprehending them for the present under the name "Compensating-adjustments of system C". Thus we are enabled briefly to review the terms of a *vital-series of the higher order*.

It will be composed, *e.g.*, of the following terms: (1) *Habitual increase of nourishment*; (2) *Habitual increase of work, set for a short time*; (3) *Variation of work*; (4) *Compensating adjustments until the vital-difference is completely annulled*.

Here again we may consider what significance this series has for our action and thought. As an instance which indicates all these terms neatly and clearly I select the well-known one from F. A. Lange's *History of Materialism*, vol. ii., p. 370. "A merchant sits comfortably in his arm-chair, and does not himself know whether the greater part of his Ego is occupied with smoking, sleeping, reading the newspaper, or digesting. A servant enters, bringing a telegram in which is written: 'Antwerp, etc. Jonas & Co. have failed.' 'Tell Jacob to harness the horses.' The servant flies. The man has sprung up, wide awake; he takes a few steps through his room, goes down into the office, informs his representative, dictates letters, sends off telegrams, and gets into his carriage. The horses snort; he rushes to the bank, to the exchange, to his business friends—before an hour is over he is again at home, throwing himself into his arm-chair and sighing: 'Thank God, I am safe from the worst. Now to consider further.'"

All that the merchant does and says are for empiriocriticism E-values, which are conditioned by certain changes in the system C belonging to the merchant in question. I will analyse this more fully.

"The merchant sits comfortably in his arm-chair"—we think of his system C as provided with a uniform habitual

increase of nourishment (term 1). The characteristic expression "he himself does not know, etc.," shows us neatly how the subsequent work-values, being habitual and familiar (term 2), attract no attention to themselves. It is the *usual* cigar which the merchant smokes, it is the *usual* newspaper which he reads, *familiar* in form and type, in its political views, etc.,—and it is also the *familiar* environment in which he finds himself, so familiar that he no longer notices its arrangement, its component parts and their qualities. As yet then we are still dealing with a vital-series of the first order like those mentioned above. (The two first terms of a vital-series of the higher order coincide with the terms of a vital-series of the first order.)

Now something fresh intervenes, the telegram: "Jonas & Co. have failed". What is now introduced no longer fits in with the course of a vital-series of the first order as sketched above (p. 458). An increase of work is indeed given, but its value is no longer that of a *habitual* one. Here then we have the varied relations of the second case, a vital-difference of the higher order, characterised by the appearance of a variation in work (term 3).

All that the merchant thinks and does in the time subsequent to the receipt of the news, all his action and thought, is to be taken as dependent upon the very varied and manifold *adjustments of system C*, which finally annul the variation which has been introduced—in so far as system C asserts itself under the diminution of its vital maintenance-value (term 4). In conclusion, however, such a change is brought about in system C as actually annuls the variation of work. Upon this depends the concluding E-value of the individual in question: "Thank God, I am safe from the worst".

I have already mentioned that the adjustments of system C in annulling its changes may be most varied in kind. In the first volume of the *Kritik* Avenarius submits them to a searching investigation. From this I select only the distinction of changes conceivable in system C into *ectosystematic* and *endosystematic*. Those changes are called *ectosystematic* which, though their first phases occur in system C, complete their course outside of it, as in movements of the limbs. Those changes are called *endosystematic* which take place entirely within system C. When, for instance, something is lost, the vague running and searching for it depends upon *ectosystematic* changes; the reflective consideration of the circumstances in which it was mislaid or lost depends upon *endosystematic* changes. When philosophers try to solve the ques-

tion as to the "origin of consciousness" by "thought," this solution depends upon endosystematic changes; when the physiologist, on the other hand, institutes practical experiments in reference to this problem, it is by means of ectosystematic changes that the vital-difference is annulled.

From his detailed analysis Avenarius gets as the most important of the endosystematic (*i.e.*, occurring within system C) adjustments—

(1) Temporary *superseding* of an unfamiliar kind of change by a familiar, upon which depends the reduction of the Unknown to the Known;

(2) Gradual habituation to a kind of change, which in its original unfamiliarity signified a vital-difference; upon this depends the gradual growth into another and originally strange apprehension; the Unknown becomes a Known.

(3) Temporary *substitution* of one kind of change for another, giving rise to permanent tendency to the mode of change substituted. Upon this depends the origin of statements which are fixed and unalterable, the so-called True, the Certain, the Eternal, etc., while at the same time that which to begin with had been true becomes untrue and uncertain.

We began by pointing out (what is here again clear) that the processes of change in the nervous central organ are analysed by Avenarius not for their own sake only, but because he aims more especially at establishing the relation between all human thought and action and those processes. This I will show by examples for the three groups of adjustments named above:—

(1) When an individual explains the origin of the sea as "perspiration of the earth-body," or the likeness of a child to his deceased father as "inheritance of the soul," we have within these E-values a reduction of the Unknown to the Known, and for the process of change in system C a superseding of an unfamiliar kind of change by a familiar. The following is another instance of this: Sir J. Lubbock tells us of the Minatarris that they were greatly astonished when they saw an American gentleman absorbed in the *New York Commercial Advertiser*. As they had never heard of reading and now saw a newspaper for the first time, they considered as to what it might be. Thus the newspaper started a vital-difference in them, to annul which their C-systems passed to a series of changes. The vital-series thus formed was brief; it came to an end in one of the savages in the E-value that the newspaper was a medicinal cloth for sore eyes. Here

again, then, we have a superseding of the kinds of change as explained above.

(2) When in the course of time a strange land becomes home to the exile, when heathen peoples gradually accustom themselves to the new Christian faith brought to them by missionaries, when the discovery—at first so strange—that the sun stands still and the earth moves round it is at last accepted as natural and certain, in all such cases we have an acquisition of E-values, which depends upon the acquisition of a kind of change which originally signified a *variation* of work, and now becomes a *familiar* exercise of work. Here we have no kind of superseding, but a mere acceptance.

(3) For the Eleatics the universe, in so far as it is variable, was "illusion," while in so far as it is invariable they called it the only "real" and "exclusive Being," and this depends upon the same substitution of kinds of change as when an individual begins to regard variable matters and events, the joys and sorrows of this world, as "empty show" and "vain trifling," while a religious "ideal," a life after death, seems to him the only "true" "eternal" life. In both cases we have a substitution of interests directed towards a "permanent," which is dependent upon a substitution of kinds of change. We may refer the following instances to the same gradual formation of a constantly functioning kind of change: the longing of the Buddhists for Nirvana, Plato's *Eros* for absolute being, the longing for salvation of the earlier Christians, Spinoza's *Amor erga rem aeternam et infinitam*, the naturalist's search for generic concepts and natural laws.

Does not all evolution of science follow the scheme of these three groups of endosystematic adjustments of the system C? All these manifestations of human thought-activity, widely different as they are, all these E-values, are referred by Avenarius with the greatest ingenuity and acuteness to the vital-series and their course; in other words, he shows their dependence upon these. Nay, he even goes further and says: If the E-values ultimately depend (directly) upon the changes of system C, then we must also be able to find groups of E-values which depend upon the particular *characteristics* of the changes.

This he does in analogy with the fact of acoustics that, in talking of sound-notes, particular statements correspond to quite definite characteristics of one and the same external motor-process. Thus, *e.g.*, a statement as to its *strength* depends only upon the *amplitude* of the oscillations, a statement as to its *pitch* depends upon the *number* of

oscillations, and a statement as to its timbre depends upon the form of oscillation.

But the external motor-process (here the oscillation) is never more than the indirect condition, and only the internal motor-process, *viz.*, change-process of the system C, is the direct condition; hence Avenarius endeavours to show in the latter also the corresponding characteristics to which particular statements may be assigned, as values dependent upon them.

He distinguishes in the change-process of system C the following characteristics: (1) Form, (2) magnitude, (3) direction, (4) relevancy (significance), and (5) familiarity. To these characteristics are assigned definite groups of E-values which Avenarius calls "fundamental values". (1) To the form of the change-process are assigned all statements which are dependent upon the general sense (sense of touch, pressure, temperature), and upon the senses of hearing, smell, taste and sight; all, therefore, which Psychology has hitherto liked to call "sensational quality". Avenarius does not use this expression, as for him "sensation" itself is only an E-value, not a metaphysical something which individuals merely "have" or "possess," and which can be investigated apart from its conditions, *i.e.*, from the appropriate changes of system C.¹

(2) Next, the E-values of intensity, as, *e.g.*, "strong," "weak," are logically assigned to the *magnitude* of the change-process.

(3) The statements "pleasure" and "pain" are made to depend upon the *direction* of the change-process; the E-value "pain" is conditioned by disturbance of the vital maintenance-maximum, and the E-value "pleasure" by re-approach to this maximum.

(4) The *relevancy* of the change-process forms a further characteristic. This does not depend upon the magnitude and strength, but upon the significance which the partial system just affected has for the whole central organ. The magnitude depends upon the divergence from equilibrium; the significance, on the other hand, upon natural disposition and training. According, therefore, as the change-process affects a partial system which is or is not highly developed by its disposition and training, it will assume a different value although the magnitude may be the same. The E-values of

¹ Compare with this important question the article of Jos. Kodis, Ph.D., "Der Empfindungsbegriff auf empiriokritischer Grundlage," in *Vierteljahrsschrift f. wissenschaftliche Philosophie*, 1894, xxi., 4, p. 425 ff.

the general emotional attitude, the movement of feeling, moods, etc., are assigned to the characteristic of varying relevance as thus described.

(5) The mode in which a change-process is affected by practice and training is defined as a further characteristic,—it is called familiarity; and to this Avenarius assigns those E-values which are most influenced by habit, *i.e.*, the three great groups of statements, “real,” “known,” and “certain,” with all their variations.

If now, instead of a vital-difference of the first order, one of a higher order introduces itself, that is, a *variation* of work, then the variation of the change-process may have special reference either to the form, or to the familiarity, or to the totality of the inner connexions, etc.

(1) In variation of the form we get on the one hand a *deviation* from the *familiar* form, on the other hand a *re-approximation* towards it. To these are assigned the groups of statements expressed in terms like “differently,” “in other manner,” etc., and “the same,” “in like manner,” etc.

(2) When the familiarity of the change-process varies, then we get the statements which depend upon varied, *i.e.*, diminished, familiarity: “less real or not real,” “unknown,” “uncertain,” etc.

(3) When the *totality of the connexion* of the inner change-processes *varies*, these latter become more active, more differentiated, more articulated. The progressive perception of finer details (discrimination) is made dependent upon this—a most interesting inclusion of the problem of attention in the general connexion between E-values and the change-processes of system C.

Now, readers may ask to what purpose all these classifications are made. In assigning those great groups of E-values to certain conditions defined from a merely logical point of view, Avenarius does not purpose to *explain* the *content* of these E-values, but he is enabled to determine the general *form* of their dependence and to find the unit, without which a general view of the world is impossible. He paves the way—not for the psychologist in the metaphysical sense—but for the physiologist, who is now confronted with the task of setting forth what those conditions, which empiriocriticism defines in a purely logical manner, really are, of what *physiological* processes they consist. Without this methodological investigation, the physiologist is perplexed with superabundance of details, which, however exact they may be, he is not able to unify.

We must say one word more as to the way in which

Avenarius defines this dependence which I emphasised so often. If he is to give us a *general* theory, *above* all parties and including all, then here, as in the presupposition from which he starts, he must keep free from all dogmatic definitions. Hence he says: we know nothing of any mediation between "physical" and "psychical"; we accept no soul or reason, no consciousness, as a kind of *spiritus rector*—we know nothing of any *transition* from the physical to the psychical, but we also know nothing of any principle of *parallelism* between the two series of phenomena, nor of any causal connexion whatever. This all proceeds from special theory. What we know and have to determine is merely this: where "psychical values" are found these definite physiological states are also present, and differences in the physiological functions of organisms are accompanied by differences in the psychical values which are stated by the same individuals.

But to determine this it is quite enough to say: we have a relation between two terms such that *if* the one term alters, *then* the second alters also. This relation Avenarius describes, connecting it with the mathematical conception of function as a *logical functional-relation*.

By this conception of the *logical functional-relation* Avenarius is enabled to avoid completely the conception of causality, he has no further need of it; and this is the more advantageous because even causality itself conceals something dogmatic, something which is not to be found by pure description.

Here Avenarius agrees also with the well-known physicist and philosopher of Vienna, *Ernst Mach*. The latter, in his *Prinzipien der Wärmelehre*, says in an interesting chapter on Causality and Explanation (p. 433): "When we try to get rid of the traces of fetishism still adhering to the concept of cause, when we consider that as a rule no *one* cause can be assigned, but that a fact is generally determined by a whole system of conditions, then we are led to relinquish altogether the concept of cause. It is far better to regard the conceptually determining elements of a fact as *mutually dependent*, in exactly the same sense as does the mathematician, or geometrician." And again on p. 435 he says: "Only the relation of the actual to the actual has any value, and this relation is exhausted by description".

To Avenarius the important point was the methodological need, that just as we are able to think of the lower organised nervous systems as functioning without consciousness, so also we should be able to think of all human doing and

striving, all action and thought, imagination, hope and love, without immediately invoking a spirit in explanation.

Of course we cannot demand the proof that certain changes in system C of an individual really take place *without* consciousness; but then the proof that they take place *with* consciousness is also impossible. The proof, however, is quite unnecessary. All that we are concerned with is, how we are to think of these changes as happening.

If it is possible to think of the whole infinite manifold of our action and inaction as taking place without being forced to introduce a soul, a consciousness, etc., in order to explain it, then the assumption of this, as of all other faculties, motive-powers, etc., was a superfluity with which we can dispense. If we can conceive of all without any insoluble remainder or contradiction, apart from these metaphysical factors, and if in doing so we find no trace of the smallest gap and have no need to revert to them, then these factors have been a superfluous assumption which we drop, as we should also drop the atomic and æther-hypotheses if we could think of phenomena as taking place otherwise without contradiction.

But in any case for a general theory of knowledge such as Avenarius proposed, it was important under no circumstances to begin *with* a soul, *with* a consciousness, *with* a thought, *with* a will, etc. That were to begin with something unknown, and to convert an explanatory hypothesis into a dogma—briefly, *to begin at the end*.

If, then, we still desire to regard Philosophy as Science—and that is what we desire—we must begin *without* the hypothesis of soul or consciousness as the immediately certain.

But, it will be asked, is not that what materialism also does?

No! There is a difference which must not be overlooked. For the materialist in beginning without consciousness makes the denial of it a principle; he establishes a principle, and thus begins with a dogma concerning the nature of man, which is just as much unproved as if he should begin with its opposite.

This was not the procedure of Avenarius. He will at first say nothing about the nature of man and his "physical" and "psychical" values; beginning without metaphysical factors he will establish no principle, only a *method*. And that is the great and important difference: For materialism, to begin without a soul is a principle; for empiriocriticism it is a *method*, a method which is justified by the hypothetical

character of these presuppositions. Nothing is affirmed by them, and nothing denied; only it is said: We know at present nothing.

And how if in following this method consistently we finally arrive at that consciousness or soul, of which at the beginning of our investigations we were obliged to say that we know nothing? Why, *then* it must be so, then both would have become for us an "immediately certain," upon which we could take our stand in other investigations. But the *justification* of this method will be in no degree impaired by this *ultimate* result.

In the first instance then we must confine ourselves to those changes of state in the nervous central organs upon which everything is based, the changes and series of changes in system C. It is from the nature and the states of the central organ alone that the one simple principle must ultimately proceed to which we may refer all the most complicated manifestations of our being, as well as our most simple movements. And to these changes in system C are added by the individual those statements (E-values) which describe the counterpart of that essential co-ordination of which the central term is the individual himself who makes the statement.¹

Simply to identify the doctrine with Materialism and Realism, or to regard it as a variety of these and say that Avenarius holds a "Psychology without a soul" in the same way as Fr. Alb. Lange, would be to mistake the very key-stone of his theory, that generality to which, from his purely positional standpoint, he attains by his method of pure description.

To bring this generality well into the foreground I will here notice the attitude of the *Kritik der reinen Erfahrung* to the book of books, the Bible. For the doctrine of Avenarius, *if* it is general, must cover even the views expressed in the Bible. Avenarius has explained himself on this point in the *Kr. d. r. Erf.*, vol. ii., p. 486, note 153.

He says there: "If we allow in general the unity of the plan of creation, then the pre-eminence of my uniform point of view should also be allowed, even from the standpoint of the biblical history of creation. If God made man *first* from a part of the environment (the dust of the ground) and *then* breathed into him the 'breath of life,' then the internal arrangement of the parts of the system C thus formed was determined and created before the work of art itself was set

¹ See Avenarius, *Der menschliche Weltbegriff*, p. 128.

in motion. Even from this standpoint of the biblical history of creation, we might first analyse these changes of system C which are predetermined by its arrangement as conceivable (hence *before* we had to regard them as wholly or partially realised in consequence of the inspiration of the living breath), and *then* we might connect these processes methodically with the manifestations of the 'living soul' occasioned by the inspiration."

But this is what Avenarius *did* in his general theory of knowledge. He first investigated his fellow-men themselves and their movements and sounds in a purely mechanical way, purely according to their mechanical significance, but from a methodological point of view; in this way he obtains his vital-theory of the changes in system C, and then, but not sooner, he assigns to them their so-called "psychical" values, the E-values.

"On the other hand"—Avenarius continues in the same place—"it agrees both with the uniform plan upon which system C is based and with the construction of system C, which is then independent of the possession of a consciousness, that under certain conceivable circumstances, not to be foreseen by the 'created beings,' system C is so arranged and disposed as to be capable of maintaining itself under diminution of its vital maintenance-value, whether the 'created being' is in other respects a higher or a lower one. And this means . . . it must correspond even to the standpoint of the biblical narrative of creation, that we should be able to think of all purposive practical or theoretical behaviour as following one and the same scheme. So it is, *e.g.*, when the brainless frog substitutes a more remote movement, when the one first made and most familiar to him fails of its result; or when a chained fox, after first trying in vain to reach with his fore-feet the food which lies too far off, turns round and gets it with his hind-feet; or when the child passes to continually new and more complicated movements to attain the same end; or when a speculative thinker, after first trying, but always failing, to prove the proposition 'God is the unconditioned, upon which all conditioned must be based,' finally converts the proposition into the thesis, 'The unconditioned upon which all conditioned is based, I call God'; or when the mathematician, in order to make his 'space-intuition' (or more accurately his 'estimates of mathematical spatial images') in a corresponding degree infallible, passes from the objects given by intuition to the objects given by definition, which objects the mathematician himself chooses and determines."

It is well known that all religions are anthropomorphical; but are not the natural philosophy of to-day, the psychology of to-day, and all philosophy of to-day, anthropomorphical also? We speak of the "inertia" of matter, the "resistance" of atoms, the "action" and "re-action" of forces, the "kindness" and "wisdom" of nature, of the attention which is "directed" to this or that, of the will which "leads" us and is the "impulse" of our actions—sensation, feeling, ideation, and thought—all is made anthropomorphic and is treated from an animistic point of view, even by the so-called empiricists.

The hidden ground for this is to be found in the relinquishment of the natural concept of the universe, in the division of the one universe into an inner and an outer world, in the division of the one course of events into a physical and a psychical, and in the need of connecting and uniting what has been artificially separated, the need of finding a mediator between the universe of "Being" and that of "Thought".

Avenarius, on the contrary, has succeeded in once more presenting a view of the universe as one, which corresponds to theoretical as well as to practical needs. He comprehends all our action and thought as E-values, which depend immediately upon the change-processes in system C, and mediate upon the change-processes in the component parts of the environment, of R-values.

If, *e.g.*, I have given to me for investigation the statement of an individual, "I have the perception blue," I may approach my task both from the side of the *designation* and from the side of *that which is designated*.

If I approach the task from the latter side I find nothing but R-values, first, the external change-process, the vibrations of æther, second, the inner change-process, the brain-process. This mode of regarding what takes place is called the *absolute* method. Both processes are measurable events, and have a chemical or physical significance; but they differ in that the external change-process has *only* this chemico-physical significance, while the inner change-process has this and yet another significance, the meaning, the sense or content.

In referring to the inner change-process, I have turned from the absolute point of view to another which is called the *relative*, because the relation between the individual and the objects is now discriminated. In this relative point of view I find nothing but E-values, *viz.*, in this case I do not mean by "tree" a part of my environment, nor by "blue" the vibrations of æther, nor by "perception" the brain-process, but the meaning which the word "tree," "blue,"

"perception," etc., possesses as its own characteristic meaning in contrast to other meanings. Inasmuch as the relative point of view cannot but finally become absolute, I may again regard the relation between the individual and the surroundings (in reference to E-values) in an absolute manner. The result is, generally and normally, that with the process in System C, or in a partial system, there is connected by the continuation and extension of the change-process, a secondary process in an adjacent partial system. By means of this secondary and centrally-conditioned process a sound-complex, which has become firmly associated with the first process, is either uttered by actual movement of the organs of speech or brought into recollection; thus we get, in the first case, the ectosystematic E-value, the verbal denomination, or, in the latter case, the purely endosystematic E-value.

Therefore the signs or R-values, and that which they signify—the E-values—may be regarded as coinciding. They differ only as different modes of viewing the same process; and the two modes are not, as might be supposed, distinguished by their form but by their content; for, from the absolute point of view, we consider only the parts of the environment, or the individual co-ordinated with them; from the relative point of view, we consider, first, the parts of the individual, secondly, the individual, and thirdly, his statement.

According to this view, which may be constructed directly from the theory of Avenarius, we have in the statement "I have the perception blue," a series of signs, of which I will consider at present only the signs "perception" and "blue". One of these, the sign "blue," characterises and describes the object, the counterpart in the essential co-ordination present, and the external change-process; the sign "perception" on the other hand characterises and describes not only this, but also and as well the relation to the subject, the central term of the present essential co-ordination and its inner change-process, its momentary re-action in distinction from other conceivable reactions, *e.g.*, "ideation," "recollection," etc. So long as the individual observes and describes naively, he is content merely to describe the object, as in the statement "that is blue"—he does not characterise himself or his specific activity more accurately because he himself, as the relatively constant term of the essential co-ordination, is forgotten or overlooked. It is only when the individual begins to observe relatively and reflects upon himself as the subject, as well as upon the object, that he characterises his own activity, his own processes in relation and co-ordination to the external

processes, more exactly as "perception" or as "ideation," etc.

In Empiriocriticism, then, we must regard "perception" as being a sign in just the same way as "blue"—both complexes of sounds are dependent upon a secondary change-process and enable the individual to characterise in the one case the external condition, R, in the other the relation of this R to the constitution of the system at the time in question. In using these signs the individual does not intend to say what the external condition of change, or the object, is in itself (*e.g.*, it is blue in itself, *i.e.*, without being in the relation of essential co-ordination to an individual), nor does he intend by his statement to denote that he himself brings a subjective faculty (the faculty of perception) to the blue which is present outside. The external condition of change *is* not blue in itself, and the individual *has* not the perception.

The question as to the object "in-it-self" is absurd, for it means a question as to an object which is not an object for any one. "Apart from the logical contradiction of this question," says Avenarius, "it is also full of contradiction from the point of view of a general theory of knowledge. We may, indeed, think of an environment into which no human individual has as yet entered; but we cannot think of any part of this environment, nor any part of any environment at all, which is not also a counterpart, or what is the same, we cannot think ourselves (as central part) away. What we can do in this respect is either to *disregard* ourselves, or to think that at one time no living being was to be found in the whole world. But in the first case, when we ignore ourselves, we merely play the part of the unnoticed spectator; or, if we like, of the spectator who is so absorbed in looking that he forgets himself in the spectacle. In the second case, where we assume that at some time there was no living being in the world, this world still remains for the questioner the totality of his counterparts—he merely admits no *other* central parts (himself, as we have said, he cannot think away) to whom *his* counterparts might also be counterparts. But for the parts of the environment to be counterparts it is sufficient that he, the questioner, continues to be the central part; and that he continues to be, so long as he still confronts the universe with questions."

But the other suggestion, that the individual has the *perception*, is also absurd; it means that he *has* the perception *in himself*. The individual has indeed his brain in himself, and in the brain the cortical layers of the cerebrum following

"perception," etc., possesses as its own characteristic meaning in contrast to other meanings. Inasmuch as the relative point of view cannot but finally become absolute, I may again regard the relation between the individual and the surroundings (in reference to E-values) in an absolute manner. The result is, generally and normally, that with the process in System C, or in a partial system, there is connected by the continuation and extension of the change-process, a secondary process in an adjacent partial system. By means of this secondary and centrally-conditioned process a sound-complex, which has become firmly associated with the first process, is either uttered by actual movement of the organs of speech or brought into recollection; thus we get, in the first case, the ectosystematic E-value, the verbal denomination, or, in the latter case, the purely endosystematic E-value.

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the outer layer of the neuroglia, and in these the separate cortical cells, and in these the cell-nuclei, and so on. All physiological processes and states of the organs and their parts are in him; but never a perception, sensation, idea, etc.

It is just the same with a thought and with thinking. Avenarius says expressly: "Analysis of that which is called 'I' tells us indeed that it has a brain and thoughts, but it never tells us that *the brain has the thoughts*. A thought is indeed a thought of my Ego; but it is not therefore a thought of my brain, any more than my brain is the brain of my thought. That is to say: The brain is not the dwelling-place, seat, producer; it is not the instrument or organ, not the supporter or substratum, etc., of thought. Thought is not the inhabitant or commander, not the other half or side, etc., but neither is it a product; it is not even a physiological function, or merely some state of the brain."

All functions of the brain are qualitatively the same, even as change-processes; they vary only according to form, magnitude, direction, connexions, etc. "Thought" is only the designation and characterisation for the starting of a change-process, which is not peripherally but centrally conditioned, and which is therefore not a primary occurrence, but a reproduction; and "thinking" is only the designation of the process of combining thoughts in series.

But still the expression, "We have in us perception, thinking, etc.," may have a true meaning. By the proposition "London is on the Thames" I do not mean to say that the *sound-complex* "London" is on the Thames, but "that which is designated as London"; and in the same way by the proposition "We have in us a thought" I may mean "We have in us what is designated and characterised in reference to its specific conditions as 'thought'". But that is the change-process specifically determinable by its constitution and characteristics, and this we indubitably have in us. So long as I mean to say only this and nothing else I am correct.

But that is just what the prevalent Psychology and Philosophy does not mean to say; it is rather of opinion that in addition to the physiological process we have something else in us, a metaphysico-animistic something, by means of which the physical first becomes, as it is called, "psychical"; e.g., a perception *by means of* which we project our impressions, a thinking *by means of* which we first attain to thoughts, etc. Knowing how easily our language with its constant anthropomorphism misleads us into errors, Avenarius urges that we should never say that perception, sensation, thought, consciousness, etc., are in us, but merely

that change-processes are in the organism, more specifically in the nervous system, in the central organ, in system C, etc.

On the other hand, Avenarius does not identify change-processes with "perception," "thought," as the materialist does, when he follows the well-known saying of Vogt that thoughts are a secretion of the brain, just as urine is of the kidneys. When Avenarius analyses from the absolute point of view that which is designated he is dealing only with the external and internal change-processes, with their conditions; when he analyses the designation from a relative point of view he treats of the significance, the meaning, the content, which we connect with a word in its dependence upon certain characteristics of the change-process. Thus in the second volume of the *Kritik* he arrives at the result that by the sign "perception" we mean at bottom only the same as by the sign "thing," and that by "idea" we mean the same as by the sign "thought"; the distinction in each case is only that by "thing" and "thought" we characterise the way in which *just an R-value* exists for us, while on the other hand by "perception," "idea," we characterise the way in which an R-value exists *just for us*. In the first case the E-value is a "sign" for the object, in the second a "sign" for the relation of that object to the subject of the same essential-co-ordination.

Just as the sound-complex "London" is not what is designated, but is used for what is designated, so also the E-value "perception" or "red," etc., is not a change-process of system C and not a change-process in the surrounding. Indeed we can never say more than "Every E-value is characterised as that which, at the time of its existence for the individual, attains to being named".

It is conceivable that organisms of the lowest kind have originally only the primary change-processes, which disappear quickly and completely, without leaving any residual effect. For such beings without any residual effects of change, the environment would be always strange, however often it might be presented to them as stimulus. Each stimulus and each complex of stimuli would be new every time; they would have no sign by which they might be distinguished and remembered. Only when the residual effects of change have been developed and elaborated, and the secondary processes have arisen through extension to adjacent cells and subordinate organs of the central organ, do we get the important circular process, from any point within which the whole complex of changes may be set in motion. The possibility of changes which are centrally con-

ditioned comes first with the residual effects of change and the secondary processes. There may now be associated with the peripherally conditioned process, one which is centrally conditioned, the repetition of the first eliciting repetition of the second.

As we say that a sound has content and significance when we *think* something in connexion with the sound, so also the primary change-process receives meaning and content for an individual from the response of a whole series of secondary processes, which associate themselves to the primary, and this association takes place in a definite order. Thus the E-value is already forthcoming before the sound-complex is there. In the formation of the sound-complex the same process fulfils itself once more; sound-complexes themselves are at bottom only marks for our attention and signs for a certain order of characteristics. In this pure description we have no need of the "projection theory," etc. Avenarius never says: "The content of my perception is there in space, where I see it, 100 paces in front of me". How indeed can one say "I see my perception"? The content of a statement, e.g., "red," is never in space; what is in space is the R-value, which is characterised for the individual by the E-value "red". The individual characterises the R-value always by some one aspect (whenever it actually conditions change in his system C), either by "red," or "hard," or "real," or "thing," etc. For all these characterisations we need no "projection," because nothing at all is projected. The brain-process remains the brain-process, and the external condition of change remains the condition of change; no projection is connected with the description and naming of the two and their relation.

Concerning the last writing of Avenarius, *Der menschliche Weltbegriff* (Lpz., 1891), I may be allowed to quote a few words from an essay published by a pupil of Avenarius, Mrs. D. Josepha Kodis, Ph.D., in the *Psychological Review*, vol. iii., 6, p. 609.

"An especially new point in this paper is the theory of 'Introjection,' by which Avenarius explains the growth and formation of the theory that a fundamental difference exists between the 'inner' and 'outer' experiences. Avenarius does not find in these two kinds of experience any 'incomparability' or any 'fundamental dualism'. The idea of their essential difference has been derived, according to his opinion, from a kind of false materialism, which believed in the enclosure of the soul in the body or in a part of it,

and, later, in the enclosure of the faculties of the soul in the soul's substance. From this belief sprang the notion that the soul was something enclosed from the 'outer world,' into which enclosure every impression from without could come only through a putting-in, or 'introjection'. The whole modern psychology, psycho-physics and most of philosophical theories contain such opinions, and therefore serve to strengthen the artificial wall between the inner and outer experiences which makes the sciences of the 'inner world' always more inaccessible to exact methods of investigation, and consequently more sterile."

The Philosophy of Avenarius attracts more and more attention from thinkers who are striving for new views, and it gains ground steadily. England still holds aloof from it, and this is to some extent strange, since it is in England that we find the origin of the Association Psychology and of a Common-Sense Philosophy; it is true that taken as wholes neither of these has anything to do with Empiriocriticism, but in detail they would find many of their propositions in Empiriocriticism. It must not indeed be concealed that the difficulties of penetrating into Avenarius' works are very serious, chiefly because of the entirely new terminology introduced by him.

To those who would make themselves acquainted with Empiriocriticism, my *Einführung in die Kritik der reinen Erfahrung* may perhaps be of use. For other literature about Avenarius I may draw attention to my "Nachruf" in the *Vierteljahrsschrift für wissenschaftliche Philosophie*, Jahrg. xx. Heft 4, p. 386 seq. Quite recently there have been added to these studies two articles by W. Wundt: "Ueber naiven und kritischen Realismus," II., "Der Empirio-kriticismus" (*Philosophische Studien*, vol. xiii., pp. 1-105 and pp. 323-433). The answer to these will soon appear in the *Vierteljahrsschrift für wissenschaftliche Philosophie*.

To those philosophical inquirers of to-day who wish to attain new views, to come forth from the treadmill of former ways of thought, to be freed from the work of the Danaides, the eternal carrying of water in a sieve, to these Empiriocriticism offers a most encouraging inducement, even if they do not agree (or do not yet agree) with the particular details of Empiriocriticism, or if they should at first draw back alarmed by the new, unfamiliar and difficult terminology. With reference to this point I may close this sketch with the consoling words of *Ernst Mach*:¹ "It is from the new, the unfamiliar, the uncomprehended, that all stimulus to inquiry proceeds".

¹ E. Mach, *Die Prinzipien der Wärmelehre*, p. 367. Leipzig, 1896.

II.—THE GOAL OF KNOWLEDGE.¹

By J. H. MUIRHEAD.

I PROPOSE to discuss three questions in this paper, the first two very shortly, the third at greater length:—First, under what form ought we to conceive of the goal or ideal of knowledge? secondly, how does this ideal operate in actual experience? and thirdly, what is its relation to ultimate reality?

I.

What in general outline is the nature of the ideal which we set before ourselves in knowledge? In attempting an answer to this question I may perhaps be allowed to refer to the contents of the paper I read before this Society last year, which was published in *MIND* for October, 1896. I there tried to show that the beginnings of knowledge must be looked for in a concept or form of apprehension which, like the undifferentiated continuum of the psychologist, may be said to contain in itself the possibility of all differences, but to hold them as yet in solution, awaiting the distinguishing, crystallising action of the logical judgment to give them at once a separate place and coherent connexion in the whole. Following this suggestion, we may describe the end of knowledge as a concept or mode of apprehending the world in which, as in the developed organism, the processes of differentiation and integration have been brought to completion in a fully articulated system of coherent judgments.

This, if you like, is a metaphor, but it points to the two most important characteristics which logic must recognise as belonging to fully developed knowledge—all-inclusiveness and self-consistency. We seek in the first place to know all that is to be known about a thing—or about the world.

¹ Read before the Aristotelian Society, 14th June.

The original subject-concept becomes differentiated in a number of predicate-concepts. Or, to express the same thing in terms of judgment, the judgment which predicates mere existence of a something to be known is extended into a system of judgments which tell us what is to be known about it. But secondly we seek to understand what we have learned, to connect one predicate-concept with another. Ordinary experience brings with it the conviction not only of its own poverty as compared with the infinite riches of the world, but of its own inward discordancy as compared with a vision of harmony and ultimate transparency—a transparency which for logic must consist in the consistency and coherence of the judgments which we are forced to make upon reality as it comes before us in ordinary sense-perception and in the processes of scientific investigation. Knowledge may thus be said to aim in the first place at its own expansion. It seeks to embrace reality in all its parts or details. It aims in the second place at explanation. It seeks to understand the relation of the parts to one another, and to the whole to which they belong. Its ideal may thus be schematised as a whole of clear and distinct parts related to one another in such a way that the mind can pass from any one along the lines of judgment and inference to any other, with the result that the whole is seen to be reflected into every part, and every part to contain the whole.

Whether the world can ever thus be reduced to complete transparency is a question with which we need not trouble ourselves at present; it is sufficient to note not only that all science proceeds upon the assumption that it can, but that those sciences which are most advanced, and which as "deductive" are commonly taken as the types of completeness and certainty, really do to a certain extent exhibit these characteristics. Thus geometry aims in the first place at exhausting and in the second place at proving the interconnexion of the properties of the figures with which it deals, and it would not be difficult to throw the knowledge we derive from it as to any particular figure, *e.g.*, the triangle, into a form which would exhibit the properties of the figure as such and of each of the separate species of it (if it has species) as necessary deductions from its own nature and as thus inherently related to one another through their common relation to the whole whose properties they are.

II.

Without stopping to dwell upon this,¹ we may go on to notice in the second place the mode in which the ideal under these two aspects of all-embraciveness and complete consistency operates in actual experience.

The question deserves more careful consideration than I can here afford to give it, but I must not pass it wholly over. The answer in general is that it operates like any other ideal. The dynamical efficiency of an idea, that which transforms it from a mere idea in the mind into an end or an ideal, is the felt discord between it and the actually existing fact. In his little book on the Psychology of the Moral Self Mr. Bosanquet has some observations on the question how our ideas can include not only facts but purposes, which may assist us here. He points out that they can become purposes by being recognised as only conditionally true. A purpose is always relative to actual facts; an ideal is always based upon some reality. It stands to that reality as an apperceptive group (*e.g.*, the group corresponding to a penknife) does to the actual presentation (*e.g.*, the penknife in my desk). The ideal is only realised when the actual thing comes up to the idea of it. My penknife is rather a broken-down affair; until I have it cleaned up and sharpened my idea is only conditionally true. Facing the penknife as it is, there is the idea of what the penknife ought to be ready when the contrast becomes too painful to rise into an actual purpose to take it to the cutler or replace it with a new one. Before turning to the question before us we may notice that while the above mode of expression is undoubtedly the right one from the point of view of psychology, from the point of view of teleology we may prefer to reverse it. Here we have to recognise that the ideal is the truth of the actual. The source of dissatisfaction, and therefore of action, is that the actual is not true. It fails of truth and reality because it falls short of the features that the persistent idea or apperceptive system contains. The reality of the knife is its suitability to its purpose; so far as it is unsuitable it fails to be a knife. In taking it to the cutler's I restore this reality to it.

Applying this to the ideal of knowledge, the actual fact here, of course, is a concept or group of concepts; the persistent idea is the idea of these concepts rendered internally harmonious in the manner we have described. This ideal

¹ For fuller details see the excellent sections in Hobhouse's *Theory of Knowledge*, pt. iii., c. 6, *init.*

asserts itself against the actual, forcing us to realise that it is only conditionally true, that it can only become so as we bring our actual concepts into harmony with it; or (as we have preferred to express it) that our actual concepts are not really true and real at all and can only become so by having their nature so altered as to conform to the ideal. This alteration, we have seen, takes place in two directions—that of extension and that of coherence; and this twofold character is emphasised in the history of mind by the alternation of periods of specialisation in which facts are accumulated with periods of speculation in which they are harmonised and explained.

This tendency of these two sides to fall apart in actual life has led some writers to represent them as not merely different but actually opposed to each other and requiring to be harmonised by a kind of compromise.¹ But these are not two different ideals but different sides, of one and the same. In any genuine piece of scientific research the accumulation of facts is always controlled by unifying intelligence. In the pursuit of knowledge the human mind cannot really go on adding fact to fact without some effort after inner organisation, any more than in the pursuit of happiness it can go out to new objects of interest without some attempt at co-ordinating them with the old. On the other hand, just as the instability of a life which is founded on too narrow a principle, *e.g.*, money-getting, is the source of moral progress in individuals and nations forcing them in a crisis to recognise that there is more in life than their philosophy has dreamed of, so it is the continual development of contradictions within the unity which our thought has already established among the facts that drives it on to a more comprehensive view, and, as Bradley says, compels it to take the road of indefinite expansion. All this will be clearer presently when we go on to discuss the relation of this formal account of the goal of knowledge to the concrete reality. Meantime an example taken almost at random may assist us to understand how fact and theory act and react on each other in these respects.

When Prof. Seeley in his posthumous work on the History of British Diplomacy proceeds to examine the character of the fact we know as the English Revolution he finds the usual account of it which attributes an important and all-pervasive change to the insignificant cause

¹ See James in his recently published vol., *The Will to Believe*, Essay on the "Sentiment of Rationality," p. 65 foll.

of the private character of James II. and his personal friendship with Louis XIV. altogether inadequate. To explain this apparent contradiction he asks us to go beyond the limits of the fact as an event in English History, and to connect it with the larger whole of which it is only a part, *viz.*, the European movement of the time in which the forces of the Counter-Reformation are headed by Louis XIV., while Protestantism is represented by William of Orange. From this point of view the English Revolution appears no longer as a constitutional change taking place in a corner of Europe caused by a petty quarrel between a Stuart and his Parliament, but as an important episode in a great drama of which the chief actors are the greatest sovereign and the greatest politician and patriot of his time. By the explanation in which Seeley asks us to follow him, our knowledge is not only made more coherent; in being made more coherent it has been made fuller. The fact reflects more of the history of the world and has thus been expanded and deepened. On the other hand every new fact we discover about a thing is a step in the direction of its explanation, for this fact on closer inspection is seen to contain a relation to other things, and thus to force us beyond the limits of the part to the whole to which it belongs and which alone can make it intelligible to us. In this way a new stage in our investigation is reached, when we notice that the English Revolution is not merely a political and religious movement: it coincides with the Union of England and Scotland, the foundation of the Bank of England and the institution of the National Debt. These "facts" at once suggest a connexion with the industrial condition of the world at the time, and thus lead the way to a more comprehensive theory still of the phenomenon to which they belong as adjectives.

III.

The goal of knowledge, then, is a system of judgments or concepts, and connected in such a manner as enables us to go from any one to any other in virtue of their perceived coherence in the whole. But such a system if we could suppose it embodied in an encyclopædic treatise would be of no interest to us except in so far as it stands related to the everyday world of our experience. We are interested, if we might say so, not in science, but in the things with which science deals; thought and knowledge, as Mill reminds us, proceed "from particulars to particulars". Our aim is to

realise the *thing*, and the question occurs whether such a system of concepts as I have described, if it were worked out to completion, would put us in possession of the actual world as it is—concrete, real and individual.

The view that underlies much of the popular logic and is tacitly admitted in some of the older accounts of the work of thought and knowledge tends to separate between the ideal of science and the concrete individual thing. According to this view thought starts from the concrete reality. Its function is to "abstract" from it, and in doing so to turn its back upon the thing itself. Science and philosophy, it is implied, are well enough, but people who would keep a level head on their shoulders must ever return from these abstractions to the concrete data of sense as the only test of reality. Similarly from the side of individuality. The individual thing or event is supposed to be given within the four corners of its existence as a particular here and now. Thought has nothing to do with its internal constitution as a particular thing; its function, on the contrary, is to go beyond it and connect it from the outside with other things that resemble it in some isolated respect—in other words, to generalise it. In this process the thing itself is supposed to remain as it was before; it is merely set in a new group and viewed in connexion with other things. By means of such groupings intellectual processes are simplified, but no real change has taken place in our idea of the thing itself, or if there has, it is rather for the worse. Its individuality instead of being developed tends to be obscured: to regain it we have to turn our back again on the abstractions of thought, *i.e.*, on the arbitrary relations we have established between it and other things, and view it in the "solid singleness" of its concrete existence.

It is hardly necessary at this time of day to say much to discredit this view of the function of thought and the relation of its ideal to reality. Most philosophers now admit within limits that thought has a constitutive as well as a merely formal function with regard to reality. It is admitted, for instance, that in going beyond the thing or the fact as we are forced to do in endeavouring to understand it we are not leaving its individuality behind but carrying it along with us and raising it at each stage of our explanation to a higher power.¹ To revert to the above illustration: to bury ourselves in Prof. Seeley's theories is not to allow the

¹ Yet the view in question dies hard. See James, *loc. cit.* It is the exact parallel in logic to the theory of some people in practice that education and culture make against individuality of character.

English Revolution as a concrete event to fade away in generality, but to give it for the first time the clear outlines of a distinct and unique event. Similarly from the side of reality. We start, of course, from an existing thing or event. But its existence in time and space is only an element in its reality. Apart from its what and its why, the hold, so to speak, which we have upon its reality is but a feeble one. In developing our thoughts about it we are not abstracting from its reality or leaving anything behind which is worth having. Instead of being cancelled in the intellectual process, all that it had of reality at the outset is taken up and developed into a higher form. For reality means significance, and the significance of a thing or event is only known when the latter has become to us what his crystal is to the magician, "the ball that images the world," and we see reflected in it as in a transparent focus the characters of the whole to which it belongs.

But a further question rises when we ask not whether thought has any constitutive function in building up the world of knowledge but what is the relation of the ideal of knowledge itself to ultimate reality. Can the world we know ever really be the world as it is in itself? We have all been made familiar in these days with the doctrine of degrees of reality, and we have, I suppose, all accepted it so far as to admit that experience stands at different levels according to the degree in which it corresponds to the ideal above described of an experience which is all-embracing and completely harmonious. But let us now suppose that this ideal is completely realised so far as knowledge is concerned, in a system of concepts which exhausts the contents of the world and is internally harmonious. Would such a system express reality as it is? would it be the absolute? or does it necessarily fail to express the truth, and must it be at last condemned as mere appearance? The conclusions of recent English philosophy, as is well known, favour the latter alternative, and require to be squarely faced by any one who like the present writer holds an opposite view.

The question itself, it will be admitted, is of sufficient importance to attract more attention than it has hitherto received¹ from philosophers. It is not only the preconceptions of ordinary common sense, but the central doctrine of the current form of speculative idealism that is called in question.

¹ Since this was written Prof. Seth's book, *Man's Place in the Cosmos*, has appeared. It has enabled me to shorten my argument.

Common-sense people never doubt not only that the more they know of the world the firmer the hold they obtain of reality, but that if they knew all that it is possible to know they would be as God and *know* reality as it is. Or, to put it in the form suggested by our former discussion, they never doubt that reality is somehow given in their concept of the world, and that all they have to do is to fill that out and bring it into harmony with itself. Idealist philosophy moreover has until recently acquiesced in this view and in its doctrine of the Absolute done little more than translate it into the language of the Schools. It is sufficiently disquieting to be asked to change all this, and before giving in our adhesion to the newer theory, we may be excused for desiring to examine it a little more closely than has hitherto, I think, been done from the point of view of the presuppositions of Idealism itself.

It is hardly necessary before this Society to state the grounds upon which the incompatibility of the form of knowledge with ultimate reality is based by the writers who maintain it. I shall condense them into the two arguments that have commended themselves to two distinguished writers. In the first place it is maintained that knowledge is not the only form of reality. Besides knowledge there is feeling, and perhaps volition. As Bradley puts it: "Let us imagine a harmonious system of ideal content united by relations and reflecting itself in self-conscious harmony. This is to be reality, all reality, and there is nothing outside it. The delights and pains of the flesh, the agonies and raptures of the soul—these are fragmentary meteors fallen from thought's harmonious system. But these burning experiences—how in any sense can they be mere pieces of thought's heaven? For if the fall is real there is a world outside thought's region and if the fall is apparent then human error itself is not included there. Heaven, in brief, must either not be heaven or else not all reality."¹ The conclusion is, knowledge can never be a complete expression of the whole of reality. But secondly, the ideal of knowledge makes a demand which, if it were satisfied, would be the destruction of one side or the other of the antithesis upon which knowledge itself depends. "If thought were successful it would have a predicate consistent in itself and agreeing entirely with the subject. But, on the other hand, the predicate must be always ideal. It

¹ *Appearance and Reality*, 2nd ed., p. 170 foll.; cp. McTaggart's *Studies in Hegelian Dialectic*, p. 214 foll.

must, that is, be a 'what' not in unity with its own 'that,' and therefore, in and by itself, devoid of existence." If, on the other hand, it were to include existence, it would not be thought any longer. "It would have passed into another and a higher reality."¹ To the conclusion therefore that knowledge cannot be the full expression of reality, we must add that it cannot even form an element in the ultimate reality.

With regard to these arguments the first thing to be noticed is that they do not go on all fours. The first is directed against the position that knowledge is all reality, the second against the position that knowledge is an element in reality—the first is concerned with what we might call the ideal of consciousness, only the second with the ideal of knowledge as such.

It is admitted on all hands that the ultimate form of experience cannot be exhaustively described in terms of the goal of the scientific or speculative reason. The history of Idealist thought may indeed be said to consist of the successive steps by which philosophy has arrived at the recognition of this truth. Starting from the acknowledgment that reality is to be sought for in the field of Ideas, it is possible to describe these ideas (perhaps Plato sometimes did so) as intelligible essences unrelated to the concrete life of ordinary feeling and action. Going on from this it is a second step (which it is Aristotle's merit to have made) to have shown that the supreme end of the soul as compared with the end or ideal of the speculative intelligence is the rational or intelligent *life*; that the truth for which our souls long is not an abstract system of ideas, but a truth which shall harmonise and enrich our lives—a truth that shall make us free. Finally it is realised (and this I suppose was the characteristic contribution of Christian thought) that the Ideas which constitute reality have not only to be grasped in thought and realised in life; they have to be loved and adored as the supreme objects of feeling. This is the truth which I take it Hegel meant to express, with whatever success,² in his well-known doctrine that the highest expression of spirit is a form of consciousness, which, under whatever name (he called it Philosophy), must be conceived of as including art, morality and religion. But to admit that the highest form of experience must be one in which somehow these three

¹ Bradley, p. 162 foll. ; cp. McTaggart, p. 208 foll.

² Jowett thought he failed: "The problem of ἀλήθεια πρακτική, truth idealised and set in action, he does not seem to me to have solved; the Gospel of St. John does" (*Life and Letters*, vol. i., p. 92).

elements of thought, volition, and feeling must be included is one thing, to maintain that it must be one in which the peculiar nature of any one of them must be cancelled is quite another. What we know of them in ordinary conscious experience rather supports the opposite conclusion, for as it is admitted that knowledge, apart from feeling and volition, is a nonentity, it is equally clear that feeling and volition, apart from the experience of a soul which is cognitive in the sense in which we commonly understand cognition, are inconceivable.

The second argument, however, deals directly with the question on hand and is a more serious matter. It takes two forms which we may state briefly as follows: The object of knowledge presents itself to us with the two characteristics of infinitude and immediacy. Knowledge seeks to exhaust this infinitude in a series of finite predicates and at the same time to substitute for the immediacy of the percept the mediated necessity of a logical system. Its ideal is thus the unity of thought with reality, of subject with reality. Now let us suppose this ideal realised, what has happened? From the side of the *thing* we may be said to have completely idealised our object, but in doing so we have destroyed it, for it has in the process passed over to the side of idea. Similarly from the side of *knowledge* and *idea*: we have established the unity of subject with object, but it is no longer the unity of knowledge, for this demands the antithesis of thought and thing, and this antithesis has been destroyed. To this argument based upon the contradiction involved in the conception of the ideal of knowledge as the unity of subject and object is added another based upon the conception of the ideal as the complete individualisation of the object. Knowledge aims at the complete differentiation of the subject, but as the instrument with which it works is always the abstract predicate, it necessarily fails to do justice to the contents which it endeavours to express, and the true individuality of the object falls outside the system of our predicates. As Mr. McTaggart puts it: "The fact that the object is more or less independent as against us—and without some independence knowledge would be impossible . . . —renders it certain that every object has an individual unity to some extent. Now knowledge fails to give this unity its rights. The meaning of the object is found in its This, and its This is, to knowledge, something alien. Knowledge sees it to be, in a sense, the centre of the object, but only a dead centre, a mere residuum produced by abstracting all possible predicates, not a living and unifying centre, such as we know

that the synthetic unity of apperception is to our own lives which we have the advantage of seeing from inside. And since it thus views it from a standpoint which is merely external, knowledge can never represent the object so faithfully as to attain its own ideal."¹

Let us be quite clear as to what it is in the above arguments that concerns us. We are not concerned with the question as to whether the ideal of complete knowledge is for us a possibility. To know completely the flower in the crannied wall, we must know the whole world besides, and this we may admit is and must remain for us an ideal. The question is whether the ideal is itself "ruined" by an inner contradiction. The above arguments are put forward to prove that it is by showing that both from the side of unity and diversity in realising its ideal knowledge must commit suicide.

Now we may at once admit that this conclusion follows from the assumptions as to the nature of the unity and the diversity demanded by the ideal of knowledge on which both these arguments are based. Thus if, as is assumed in the former argument, the unity at which knowledge aims is one which is incompatible with the difference of subject and object, it follows of course that the attainment of the unity would involve the destruction of difference, and with it the ruin of knowledge as such. Similarly if we begin by assuming with Mr. McTaggart that the individuality of which we are in search is contained in something other than thought, it must of course remain so to the end so far as thought and knowledge are concerned. The ideal of thought is to think everything, but if everything is precluded by its nature as thing from entering into thought then—well then by its nature it must be left out. But there is surely the prior question—which on so important a matter might be worth asking,—whether the unity and the differentiation which form the twofold aspect of the ideal are really of the nature supposed.

With regard to the former of these points it is admitted, of course, that all knowledge is a process of unification: all judgment is synthetic. But it is equally of the essence of knowledge to be the unification of differences: all judgment *qua* judgment is analytic. Finally, in being the one it is also the other. We are not to say judgment is synthetic *and* analytic; in being synthetic it is analytic. We cannot have the unity except at the price of the difference and *vice versa*. And

¹ *Studies in Hegelian Dialectic*, § 198.

what holds of judgment in general holds in particular of the primary judgment which separates between subject and object and gives knowledge the form it wears to the ordinary consciousness of the attempt to comprehend by means of finite predicates the nature of a being which is essentially infinite and incomprehensible. It is impossible to suppose that Mr. Bradley intends to deny this, which one would have thought is an axiom of modern idealism. Yet, in arguing that the form of knowledge is incompatible with ultimate reality, he seems to proceed throughout upon the assumption that the unity which the ideal of knowledge requires is one which is incompatible with the difference of subject and object. One consequence of this is that he tends to represent the differences as something comparatively accidental and irrelevant. They are a "disease" which breaks out in the object of knowledge, and has, as he tells us, to be healed homœopathically.¹ Or again they are a "dissection";² they give us the anatomy of the thing but never the living thing itself. The *life* of the object falls on the side of the unity. In all this we are tempted to ask whether Mr. Bradley has not been carried away by his own metaphor, and whether if we changed the metaphor we might not arrive at a precisely opposite conclusion. Let the differences be the living functions of the organism instead of dead sections of it, and what becomes of the unity? In this case the "life" falls on the side of the predicates and leaves us only the stillness of death as the unity out of which they come and to which they return. This, indeed, as we shall see, is very much the conclusion at which Mr. McTaggart, approaching the question from the side of the differences, actually arrives when he finds in the "this" of the thing a mere dead centre which is left on our hands when we abstract from the predicates which give life and individuality to the object as an element in our knowledge.

I do not propose to dwell further on Mr. Bradley's argument, but refer the reader to Prof. Seth's treatment of it (*op. cit.*), with which I find myself in substantial agreement. I quote his conclusion as my own: "Dissatisfaction with the form of knowledge as such seems to me I must confess chimerical; and I am sure that the repudiation of it leads not to any higher unity but to the pit of undifferentiated substance out of which Hegel dug philosophy". It will be more profitable if, approaching the question from the side of differentiation, I try to show from a point of view

¹ *Studies in Hegelian Dialectic*, § 198, p. 166. ² *Ibid.*, p. 167.

which Prof. Seth would perhaps not accept that the argument of which I have taken Mr. McTaggart as the representative is open to a similar criticism.

As Bradley assumes that the unity of which knowledge is in search is incompatible with its differences, Mr. McTaggart conversely assumes that the differences by which we seek to know the thing are incompatible with its unity. To know the thing we must know it in its abstract unity, the thisness which excludes its being this or that. But is not this simply to turn one's back on the most important lesson that philosophy since Kant has been endeavouring to teach, the distinction between the abstract and the concrete particular? This distinction is too familiar to dwell upon. For the present argument it means that "this" may be taken in a more abstract or in a more concrete sense, and it depends upon the sense in which we take it whether we shall admit that the individuality of the thing consists in its thisness or not. I may perhaps make this clear if I ask you to note that there seem to be three senses in which we use the term. We may mean in the first place by the "this" of a thing its bare existence. The thing we call a "this" is undoubtedly taken to exist—"referred to reality". The logical text-books would tell us that the term "this" denotes something, although at this early stage of its meaning they might hesitate to say what it *connotes*. It would be more in consonance with the foregoing analysis to say that mere existence for thought (mere denotation if you like) is at this stage the connotation of the term. At a further stage there is less difficulty. "This" means what is here and now. The thing is referred to a place of its own in the worlds of space and time. Besides its denotation, the text-books would say, it has the connotation of "being here and now". But, further, it may be taken to represent the thing in its complete individuality as unmistakably "this" and nothing else—completely differentiated from everything else by the peculiar relations in which it stands to them (and at the same time as we have seen rendered completely coherent and self-consistent). We may notice further that these three meanings though separable are not really separate or discontinuous with one another. They represent three stages in the development of the original concept. From the undifferentiated unity with which it starts, the mind moves onwards to its first most abstract judgment of reality in becoming conscious of a Something—a mere *ἔστιν ὅτι*—thence it is carried to its determination under the forms of space and time as a here and now, and

from this again to this determinate attribute or essence its *τὸ τι ἦν εἶναι* (what it was all along). From this point of view the objectivity or being-in-the-world of a thing is not something alien to its determination by mind—an unresolvable surd—but merely the first of a long series of thought determinations that become through the processes of judgment and inference ever more adequate to express the significance of the point in reality with which we are concerned. Moreover it is not something which is left behind, but it is a predicate which is taken up as thought advances and absorbed in the concrete reality the thing acquires as it becomes more completely known, just as the substance of a seed or embryo is not something that is left behind, but is taken up into the life of the plant or the animal organism.

We only need to apply these considerations to the argument quoted above to perceive that it proceeds upon a quite opposite assumption, the assumption, namely, that the starting-point of knowledge is an immediated diversity between subject and object. Facing the mind as the *τόπος εἰδῶν* is the object as the seat of reality, and knowledge is conceived of as the process whereby a reality having concreteness and individuality in itself is decked with a spurious individuality by means of the abstract concepts which are the predicates of our judgments about it. I do not deny that there is much in the prevailing mode of regarding the problem of the relation of thought to reality which seems to justify such a view. Even the more careful idealist writers are not free from the tendency to lay undue stress upon the logical judgment as the type of all thought, with the result that a division is made at the outset between knowledge and reality, and the mind is conceived of as "in contact with reality" in perception, and having for its problem to bridge the gulf which separates it from the world of existence. But this I believe to be a fundamentally misleading point of view, and it is much more in harmony with the leading lessons of modern philosophy to conceive of the distinction between subject and object, the given and the thought to which it is a given, as itself a moment in the development of primitive experience. If this is so, we may admit that the "this," if we take it in the first of the above senses, falls far short of the mind's ideal, but we must at the same time deny that it is something alien to thought as such. Similarly we may admit that it is to thought a dead centre, but it is dead not because it is a residuum obtained by abstracting all possible predicates, but because it is itself the

first and most abstract of all the predicates by means of which the mind seeks to realise its ideal.

The attempt to mark off a region of thinghood in the object which is unmediated by the subject naturally leads to the attempt to mark off an element of selfhood in the subject which is unmediated by the object, and we need not be surprised that Mr. McTaggart seeks to illustrate his abstract thing by the conception of an abstract ego. Facing the thing as the unity of its attitudes we have the subject as the unity of its perceptions. So far we are on well-known ground. Kant taught as much. But on Kant's view object and subject were both ultimately things in themselves and as such unknowable. This new Kantianism makes a distinction between them. The object as such is withdrawn from immediate presentation : it is only known from without, but the subject as known from within enters apparently immediately into consciousness. One can hardly believe that Mr. McTaggart is really serious with this distinction, or means to assert that there is any knowledge of the self accessible to us which is not a knowledge of the world,—any opaqueness in our knowledge of the world which is not reflected in our knowledge of the self. Yet abstractions die hard, and it may be worth while to restate the view upon this head, on which we are all, I take it, agreed, "except when we are supporting a thesis".

We are all, I suppose, agreed as psychologists that the attempt to discover in the changing scene of feelings and cognitions a permanent identical content corresponding to the self is waste of time. The consequence of this admission for philosophy is not that there is no self (any more than the consequence of the astronomer's discovery that God was not visible through his telescope was that there was no God) but that it is to be looked for in another way. It is to be sought for at the end not at the beginning of our mental life, in the extent and organisation of the contents of the mind, not in some needle's point of abstract consciousness. To know ourselves, therefore, is not to have access to some inner shrine of individual life but to understand the mode in which those contents are united to one another. Our guarantee for the unity of our own life is not any immediate consciousness of it but simply the fact that organised knowledge exists. We may say, if we like, that the unity of the self is an idea or hypothesis by means of which we render the fact of knowledge intelligible to ourselves. But it would be truer to say that it represents one of the elements which

the analysis of developed knowledge yields—the other element being the diversity of the content.

Now if this is so wherein does our knowledge of the unity of the self differ from our knowledge of the unity of the thing? Here also psychology admits that there is no content over and above the attributes of the thing corresponding to its unity. But this does not mean that there is *no* unity. It means that the unity is to be looked for in the special form of relation which the attributes bear to one another—that being most of a unity which is most organised and coherent. We may say if we like that this unity is a hypothesis we make in order to make the “thing” intelligible to ourselves, but again it is simpler to take it as one element or aspect which the nature of reality forces us to acknowledge in everything we know, the other being the differences or relations in which the unity reveals itself.

A difficulty might indeed be raised in connexion with other selves. Is it meant that we have no more immediate knowledge of our own than of other minds? This, it may be admitted, is contrary to prevailing prejudices. For it is commonly assumed that we start from an immediately given self and arrive later by a process of analogical inference at a consciousness of the existence of other minds. Yet one would have thought that recent psychological analysis, laying emphasis as it does on the part which the recognition by others plays in the growth of self-consciousness,¹ would have led us to suspect this account. It is, of course, true that we interpret other minds and wills by the analogy of our own, but it is equally true that it is in the minds and through the wills of others that we come to know our own. The knowledge of ourselves is in as true a sense mediated as our knowledge of others. We may say if we like that we only infer the existence of other minds as the hypothesis that best explains the facts of experience. But no argument can be brought in support of the view that the existence of other minds is hypothetical which would not apply equally *mutatis mutandis* to the existence of our own. Here, as in the case of subject and object in general, it is better to say that “others’ consciousness” is one of the factors which the analysis of self-consciousness yields to the psychologist, “own-consciousness” being the other. They thus stand on the same level of immediacy, for neither is really immediate at all.²

¹ See e.g. Sully, *Human Mind*, ii., p. 100 foll.

² One undoubted advantage of this way of putting the matter is that we cut the ground from underneath the form of solipsism which batters upon the ordinary psychological analysis.

If these contentions are valid the unity of apperception does not really stand in antithesis to the unity of the percept as the transparent to the opaque. The two stand on the same level and must be treated alike. They were so treated by Kant, who placed the ultimate reality of both beyond the sphere of discursive intelligence. The contention of this paper is that this is an *überwundene Standpunkt*. Its error is, in a word, that it mistakes mere existence for reality. Instead of being the fullest of the predicates of thought containing the reality of the thing as an unrevealed and (let us be frank) unrevealing secret, the determination of it as an existing "this" is the emptiest and most abstract. For it is just that one which cuts it off from other things and from the mind which thinks it; and just as the surest way to miss the reality of mind is to look for it in abstraction from the world it knows, so the surest way to miss the reality of the object is to look for it in abstraction from its relations to other things and to the mind for which these relations exist.

To sum up: We have seen that knowledge aims in the first place at exhausting and in the second place at reducing to unity the complex contents of experience. In the second place these two (complete differentiation and complete unification) are not two different ideals but different sides of the same. They take their place as constituent elements in the process by which individuality, significance, reality is given to things. Coming in the third place to the question of the relation of such individuality to ultimate essence, I have tried to show that there is no reason to hold that the system of predicates, which is the form this individuality takes in the mind, is a mere appearance which, in order that it may correspond to the nature of the thing as it is in itself, must lose this form and be merged in another which is no longer knowledge. To maintain this, as has recently been done, is to revive Kant's doctrine of the Thing-in-itself in a form which ignores without meeting the most characteristic contention of modern philosophy, that reality is to be looked for not in the abstract but in the concrete individual.

III.—SYMBOLIC REASONING. (II.)

(For I. see MIND, January, 1880.)

BY HUGH MACCOLL.

SYMBOLIC Logic (including Mathematics) may be defined as 'the science of reasoning by the aid of representative symbols; these symbols being employed as *synonymous substitutes for longer expressions that are required frequently*'. The words in italics contain the pith and principle of the whole subject. When any expression, verbal or symbolic, of inconvenient length has to be written frequently in the course of an argument or investigation, we naturally cast about for some short and simple symbol to represent and replace it. This desire to economise time, space and labour is always, always has been, and always will be, the great motive power that sets going and keeps going the evolutionary progress of the science. What, for instance, was the primary object of the symbol \times in such a case as 27365×7 ? Clearly to save the trouble of writing down an addition sum of seven rows of figures, each row being 27365. The same may be said of the symbol a^5 as a substitute for *aaaaa*, and of many others, including the remarkable and highly general symbol $\phi(x)$, which plays such an important part in the higher mathematics as a substitute for any expression whatever that contains x in any relation whatever as one of its constituents. As Symbolic Science advances and tackles more difficult problems these conventional abbreviations afterwards combine among themselves and produce fresh expressions of inconvenient length and frequent recurrence which give birth in *their* turn to fresh representative substitutes—to abbreviations of abbreviations—which in their powers of thought-condensation bear, on an average, the same ratio to the symbols they replace as these had done to *their* immediate progenitors. Thus it has been that the science of mathematics has slowly acquired its present marvellous

power within the limits of its application; and thus it will be that the newer but more general science of symbolic logic, with a wider sweep and bolder aim, will before long develop into a still more powerful instrument of research.

The problems with which our reason has to deal are of various kinds and cannot be exhaustively classified. Sometimes from certain data or premises A, *known or admitted to be true*, we have to prove a conclusion Q; that is to say, we seek to convince ourselves or others that Q *as well as* A *is true*. Sometimes we have data or premises P which are *not* always certain or admitted to be true, and then we seek to prove—*not* the conclusion Q—that cannot be done from uncertain or unadmitted data—but the proposition that P *implies* Q, *i.e.*, that *if* P is true Q is true—which is quite another matter. Sometimes our reason has to deal with the *inverse* problem, namely, to find from what data or premises Q we can derive a conclusion P, as when we seek the possible roots of a given equation. These are only two or three of the kinds of problems of which it is the business of logic to find solutions, but as they are among the commonest we will take them first in the order of consideration.

Since the conditional proposition *If P is true Q is true* (or P *implies* Q) is one of frequent recurrence we want some symbol to represent it. What symbol should we adopt? Various logicians have adopted various symbols, each giving some reason founded on some mathematical analogy for his own special choice. Boole adopts $P = {}^0/Q$ or $P = v Q$; Pierce takes $P \prec Q$; Schröder uses $P \equiv Q$; and there are many others; each writer, as I have said, justifying his choice on the ground of some real or fancied mathematical analogy. My own choice has been the symbol $P : Q$, *not* (as has been erroneously supposed) on the ground of any analogy to a ratio or division, but simply because a *colon* symbol is easily formed, occupies but little space—two important considerations—and—though this is less important—because it is not displeasing to the eye. I hold that we may claim the same liberty of definition and interpretation for any of our symbols of relation (+, =, :, etc.) as we claim for any letter of the alphabet, *x*, when in one problem (some unit of reference being understood) we say “Let *x* denote his gain”; in another “Let *x* denote his loss”; and in another “Let *x* denote the distance of the planet Neptune”. So long as it suits our purpose to attach the same meaning to any symbol, so long we should adhere to that meaning—so long,

and no longer. As a general rule we should be as conservative as circumstances will permit in the significations we give to our symbols of relation (+, =, :, etc.): these are the *constants*, the *fixed stars*, as it were, of our logical systems; while we may deal more freely with our planetary ever-varying symbols, x, y, a, b , etc., which generally denote numbers or ratios in mathematics, and classes, properties or statements in logic. But as even the so-called fixed stars are only found to be *relatively* fixed, so our so-called *constant* symbols of relation need only be *relatively* constant. In my former paper in MIND ("Symbolical Reasoning," MIND, Jan., 1880), and in my papers in the *Proceedings of the Mathematical Society* which had preceded it, I adhered throughout to the symbol $a : \beta$ as my representative of an implication; but when, after several years' abandonment, I recently returned to my logical studies and began to consider the complex relations of the higher orders of implications, as in the formula

$$(a : \beta) : \{ (u : a) : (u : \beta),$$

I felt the necessity of further abbreviations and adopted a_β as a synonym of $a : \beta$, so that the above formula might appear as

$$a_\beta : (u_a : u_\beta).$$

I also tried how the symbol a'' would act as the converse of a_u and meaning that a is implied in u . This led immediately and of necessity to the discovery that the formulæ $a''a'' = a''^{++}$, $(a\beta)'' = a''\beta''$, and $a'' = 1$ would on this interpretation hold good in logic as well as in mathematics; but I found that the series of analogies stopped when I tried $a''' = (a'')''$. Then I tried a'' as a substitute for $a + u'$ (the alternative implied by u_a) and found that the preceding three analogies still held good, and also this fourth analogy $a''' = (a'')''$, but that, on the other hand, this interpretation of a'' would lead to an additional logical formula $a''' = a'' + a''$, which does not generally hold good in mathematics.

If we take a'' as synonymous with u_a it is evident that every formula with *indices* may be converted at once into an equivalent formula with subscripts, and *vice versa*. Thus

$$a''a'' = a''^{++} \text{ corresponds to } u_a v_a = (u + v)_a$$

$$(a\beta)'' = a''\beta'' \text{ corresponds to } u_{a\beta} = u_a u_\beta$$

$$a_\beta : (u_a : u_\beta) \text{ corresponds to } \beta'' : (a'' : \beta''),$$

and so on. The last formula may be read thus: "If β is a factor of a (that is, if the statement β is implied in the

statement a); then, if a is a factor of u , β must also be a factor of u ". In spite however of the mathematical analogies obtained by the above interpretation of indices, I found it generally more convenient to employ the subscript form u_a as a synonym for $u : a$, and to reserve indices for other uses. What chiefly led me to this decision was the discovery that in dealing with implications of the higher degrees (*i.e.* implications of implications) a calculus of two dimensions (unity and zero) is too limited, and that for such cases we must adopt a *three*-divisional classification of our statements. We have often to consider not merely whether a statement is *true* or *false*, but whether it is a *certainty*, like $2 + 3 = 5$; an *impossibility*, like $2 + 3 = 8$; or a *variable* (neither always true nor always false), like $x = 4$. To illustrate the meaning of a *variable* statement, we may suppose x in the last statement to be taken at random out of three possible and equally probable values 2, 4, 6. If this experiment be repeated often enough, the statement ($x = 4$) will be sometimes true and sometimes false; its chance of being true will, in fact, be *one-third*. The formula

$$(a : \beta) : (u_a : u_\beta)$$

is another example of a *certainty*; for it holds good whether its elementary constituents (u , a , β) be *certainties*, *impossibilities*, or *variables*—separately or conjointly. But this does not apply to the converse implication

$$(u_a : u_\beta) : (a : \beta),$$

which fails for some values of its constituents, as, for example, when u is a *certainty*, a a *variable*, and β an *impossibility*.

This necessity for a¹ three-divisional classification of statements naturally suggested the adoption of some corresponding modification in notation; so I chose the symbol ϵ (as in my *fourth* paper in the *Proceedings of the Mathematical Society*) to replace *unity* as the symbol of *certainty*; η (instead of *zero*) as the symbol for an *impossibility*; and θ as a suitable symbol to denote a statement which is neither a *certainty* nor an *impossibility*, whose chance of being true is neither *unity* nor *zero*, and which, therefore, may fitly be called a *variable*. For distinguishing these three classes of statements the notation of indices is most convenient. The three equational symbols ($a = \epsilon$), ($\beta = \eta$), and

¹ For other divisions and a logic of 3ⁿ dimensions, see note at the end of this paper.

($\gamma = \theta$) will very well express that a is a *certainty*, β an *impossibility*, and γ a *variable*; but in complicated cases (in order to economise space and dispense as far as possible with those necessary evils called *brackets*) still simpler symbols were desirable. I therefore chose indices to denote *classes* of statements, so that, for example, the symbol a^u asserts that the statement a belongs to the class of statements denoted by the symbol u . On this interpretation, the three symbols a^e , β^η , γ^θ respectively assert that a is a *certainty*, β an *impossibility*, and γ a *variable*, and are therefore synonymous with the three longer symbols ($a = e$), ($\beta = \eta$), and ($\gamma = \theta$). Again, putting τ for a *true* statement (not necessarily a *certainty*) and ι for a *false* statement (not necessarily an *impossibility*), a^τ will assert that a is true, and a^ι that a is false. Thus $a^\tau : \beta^\tau$ in my new notation becomes equivalent to $a : \beta$ in my former; $a^\tau : \beta^\iota$ becomes equivalent to $a : \beta'$; $a^\tau \beta^\tau$ to $a\beta$; $a^\tau + \beta^\iota$ to $a + \beta'$; and so on; while a^e (not a^τ) becomes equivalent to the former ($a = 1$), and a^η (not a^ι) becomes equivalent to the former ($a = 0$). The symbols 1 and 0 being thus displaced by e and η were *ipso facto* set at liberty for other purposes. I use the former in conjunction with its old comrades 2, 3, 4, etc., in such cases as u_1 , u_2 , u_3 , etc., which respectively denote *particular* statements of the class u . Thus the equational statement $a\beta : a + \beta = e_1$ asserts that the implication $a\beta : a + \beta$ is a *particular* statement of the class called *certainties*, and is the *first certainty* that has entered into our present argument. Similarly the equational statement $\theta^\eta = \eta_3$ asserts that θ^η is a *particular* statement of the class called *impossibilities*, and is the *third impossibility* that has entered into our argument. And so on for other *particular* statements η_2 , e_5 , θ_4 , etc., of their respective classes. On the other hand, I use the symbols $a_{o\beta}$, a^{uu} , $a_{o(u+v)}$ etc. (chiefly to avoid cumbersome brackets) as convenient synonyms for the denials $(a_\beta)'$, $(a^u)'$, $(a_{u+v})'$, etc. For example, the formula $(a + \beta)_{ou} = a_{ou} + \beta_{ou}$ is much more convenient than its equivalent, the formula $\{(a + \beta)_u\}' = (a_u)' + (\beta_u)'$. Other symbols of abbreviation employed by me in my fifth paper (recently published) in the *Proceedings of the Mathematical Society* are the following:—

(1) a^{uv} is short for $(a^u)^\nu$, so that $a^{\eta e}$, $a^{\eta\eta}$, $(a^\eta)^e$, and $(a = \eta)^e$ are all four synonymous, each denying the truth of a^η and asserting that a is a *possibility*. Similarly, a^{uvw} means $(a^{uv})^w$; and so on.

(2) $a^{u,v}$ is short for $a^u + a^v$; $a_{u,v}$ is short for $a_u + a_v$; $(a, \beta)^u$ is short for $a^u + \beta^u$. Hence it is evident that a^{ee} , a^{ee} ,

a^n , and $a^n + a^o$ are all four synonymous, each asserting that a is an *uncertainty*.

(3) $a! \beta$ is equivalent to $\beta : a$ and asserts that a is implied in β .

(4) $a : \beta : \gamma : \delta$ is synonymous with $(a : \beta) (\beta : \gamma) (\gamma : \delta)$; and $a! \beta! \gamma! \delta$ is synonymous with $(a! \beta) (\beta! \gamma) (\gamma! \delta)$. The former is a chain of *deductive*, and the latter a chain of *inductive, sorites*.

(5) The symbol $::$ is synonymous with $=$, but of *shorter reach*, so that the equation $a :: \beta = \gamma$ means $(a :: \beta) = \gamma$, and does *not* mean $a :: (\beta = \gamma)$, which would be denoted by $a = \beta :: \gamma$. The main object of the symbol $::$, as a synonym of $=$, is to avoid a multiplicity of brackets. For example, the formula

$$(a + \beta)_u :: a_u + \beta_u = a_u :: \beta_u$$

asserts that the equational statement on the left side of the sign $(=)$ is equivalent to the equational statement on its right side, each implying the other.

(6) The symbol $\frac{a}{\beta}$ means $a_\beta a'_{o\beta}$ or its equivalent $a_\beta \beta^u$. It asserts (like a_β) that whenever a is true β is true; and it also asserts (what a_β neither asserts nor denies) that β is *not* always true when a is *not* true. The equivalence of $a_\beta a'_{o\beta}$ and $a_\beta \beta^u$ is easily proved, so that either may be taken as a definition of $\frac{a}{\beta}$. The statement $\frac{a}{\beta}$ is called a *Causal implication*, as it indicates some causal connexion between a and β , whereas its factor, the *general implication* a_β , is synonymous with $(a\beta)^\eta$ and does not necessarily indicate any causal connexion. Thus a_β always holds good when β is a *certainty*, whatever a may be; and it also always holds good when a is an *impossibility*, whatever β may be; so that a_e and η_a are always *certainties* even when $a = \eta$. On the other hand, the causal implication $\frac{a}{\beta}$ contradicts its definition and becomes an impossibility when β is a *certainty*.

(7) The symbol $a > \beta$ means $a_\beta \beta_{oa}$. It asserts that a implies β , but that β does not imply a . In this case a is said to be *stronger* than β . On the other hand, $a < \beta$ means $\beta > a$ and asserts that a is *weaker* than β . It is evident that, by this definition, $a > \eta$ is an impossibility, as it implies η_{oa} , which is easily proved to be inconsistent with our definitions. As a rule, the greater the number of factors in a statement (that is to say, the more it asserts) the *stronger* it is; but, on the other hand, the greater the chance as a rule that it contains an *inconsistency* some-

where ; and a single inconsistency η (like a zero-factor in mathematics) makes the whole an inconsistency. Hence, no statement can be stronger than an *impossibility*. By parity of reasoning, no statement can be weaker than a *certainty*. A witness whose testimony consisted of a restatement of facts already admitted and unquestioned would not be very helpful in any serious and *bonâ fide* inquiry or investigation.

(8) Two more symbols remain, and they involve an important principle. These are WA and SA. The first denotes the *weakest premise from which we can infer A* ; and the second denotes the *strongest conclusion which we can draw from A*. The symbol A is here understood to denote some function $\phi(a, \beta)$ of two or more constituents a, β , etc. ; while WA and SA denote some other functions $\psi_1(a'', \beta''), \psi_2(a'', \beta'')$, with constituents a'', β'' , etc., in which u and v may each denote ϵ , or η , or θ , as the case may be. For example, the formula

$$W(a\beta)^{\epsilon} = a^{\epsilon}\beta^{\epsilon} + a^{\theta}\beta^{\epsilon}.$$

asserts that the *weakest premise* (with subject a or β , and predicate ϵ or η or θ) from which we can infer that $a\beta$ is a *variable* is the alternative that either a is a *certainty* and β a *variable*, or else a a *variable* and β a *certainty* ; while the formula

$$S(a\beta)^{\theta} = a^{\eta}\beta^{\theta} + a^{\theta}\beta^{\eta}$$

asserts that the *strongest conclusion* we can draw from $(a\beta)^{\theta}$ alone (i.e. without further data) is the alternative that either a is a *possibility* and β a *variable*, or else a a *variable* and β a *possibility*.

It is evident that the formula $WA : A : SA$ is a *certainty* ; and a little consideration will show the validity also of the formulæ $WA' = S'A$ and $SA' = W'A$, in which $S'A$ and $W'A$ denote the denials of SA and WA, and are therefore short for $(SA)'$ and $(WA)'$. In other words, the weakest premise from which we can infer the denial of A (or that A is false) is the denial of the strongest conclusion we can draw from A ; and the strongest conclusion we can draw from the denial of A is the denial of the weakest premise (or data) from which we can infer A. For example, assuming the formula $W(a : \beta) = a^{\eta} + \beta^{\epsilon}$, we get

$$S(a : \beta)' = W'(a : \beta) = (a^{\eta} + \beta^{\epsilon})' = a^{\eta}\beta^{\epsilon} ;$$

so that the strongest inference we can draw from the *denial* of the implication $a : \beta$ is that a is a *possibility* and β an *uncertainty*.

I think I may predict that *synonyms* are destined to play an important part in the future development of symbolic logic, as they undoubtedly have done in the natural evolution of ordinary language. As new needs and new ideas arise with the growth of civilisation and the general advance of humanity, do we not often find that two words which were at first synonyms gradually differentiate and, while still remaining synonymous in some combinations, cease to be so in others?—just as a_β and $\frac{a}{\beta}$ are interchangeable in

the equivalent statements $a^\alpha \beta^\alpha a_\beta$ and $a^\alpha \beta^\alpha \frac{a}{\beta}$, but not in the

non-equivalent statements $a^\alpha \beta^\alpha a_\beta$ and $a^\alpha \beta^\alpha \frac{a}{\beta}$, of which the second, but not the first, is always an *impossibility*. And does not this principle of evolution powerfully contribute to the precision and utility of a language, both as an instrument of research and as a medium for communicating our ideas to others? In connexion with these remarks it will not be irrelevant to mention that before the idea of differentiating between the symbols a_β and $\frac{a}{\beta}$ occurred to me I

was in the habit of using sometimes the one and sometimes the other as a synonym for the general implication $a : \beta$; so that when I afterwards found it convenient to give symbolic expression to the idea of a *causal* implication I at the same time found a suitable symbol for the purpose ready to my hand.

In ordinary speech not only do we find different words with the same meaning, but also different meanings to the same word; yet it seldom happens that this leads to real ambiguity: the context nearly always removes all danger of miscomprehension. The same rule holds good in symbolic logic, with this difference that here, from our complete liberty to define our symbols as we please, we can guard against the danger with absolute certainty. In my first paper in the *Proceedings of the Mathematical Society*—a paper which deals almost exclusively with the limits of multiple integrals and with probability—I employed each of the symbols x_1, x_2, x_3 , etc., y_1, y_2, y_3 , etc. (and so on for any number of variables x, y, z , etc.), in two different senses in the same argument; the symbol y_8 , for example, denoting the eighth limit of the variable y registered in an accompanying table of reference, and also denoting the *statement* that this limit y_8 is positive; yet this double signification of the

same symbol never produces ambiguity, the context always showing what meaning attaches to it in each particular case. The following simple example of a double-meaning symbol is taken from my recent paper in the *Proceedings of the Mathematical Society*.

Let x^u , x^v , x^w respectively assert that the number (or ratio) x is real and positive, that x is real and negative, that x is imaginary, so that the disjunctive statement $x^u + x^v + x^w$ is a *certainty*; and let y^u , y^v , y^w , $(x + y)^u$, $(x + y)^v$, $(x + y)^w$ be interpreted in the same manner. What is the weakest premise in classifying x and y from which we can infer the conclusion $(x + y)^u$? And what is the strongest conclusion we can draw from $(x + y)^u$ as our only premise? The answers are obtained by an easy symbolic process and are

$$\begin{aligned} W (x + y)^u &= x^u y^u; \\ S (x + y)^u &= x^u y^w + x^w y^u (x^u + y^u). \end{aligned}$$

The first answer may be read: "The *least* that we *must* know, and the *most* that we *need* know, as to the classification of x and y into positive, negative or imaginary, in order to infer that their sum is real and positive, is that each is real and positive. We cannot infer it from less (*i.e.*, weaker) data." The second answer may be read: "The *most* that we can infer about x and y when we only know that their sum is real and positive is the alternative that either both or neither are imaginary, and that in the latter case one at least is real and positive".

Observe that the sign $+$ is here used in two different senses. In $(x + y)^u$ it connects two *numbers* (or ratios), so that $x + y$, the sum of those numbers, must also be a number; while in $x^u + y^u$, it connects two *statements*, so that the disjunctive $x^u + y^u$ must also be a *statement*. It may be objected that the employment of x^u , x^v , x^w in this way as *statements* might interfere with the free use of the same symbols when u , v , w represent mathematical quantities, such as 2, 3, $\frac{1}{2}$, etc. The reply to this is that we have only to agree or define that the letters u , v , w (or any others we choose) shall, *during the same argument or investigation*, be restricted as indices to the meanings we have assigned to them; while other indices may retain their usual mathematical signification. For example, x^3 , as an abbreviation for $(x^3)^u$, would assert that x^3 is real and negative; while x^3 , if accompanied by no definition, would be meaningless.

To show the working of this logical calculus of three dimensions I may take the following problem, which Dr.

Venn in his *Symbolic Logic* (second edition, p. 442) calls "Alice's Problem," and which I understand has (under another form) been already discussed by logicians, but with varying conclusions.

Given the statement $A_B(C : A_B')$, can C be true?

My answer is (1) that the data are not sufficient to justify the conclusion that C is possible; and (2) that the data are not sufficient to justify the conclusion that C is impossible. This I prove as follows:—

Putting ϕ for $A_B(C : A_B')$, we get, by a process explained in my fifth paper in the *Proceedings of the Mathematical Society*,

$$W\phi = A^\eta + B^\epsilon C^\eta$$

$$S\phi = W\phi + A^\epsilon B^\epsilon C^\eta = A^\eta + B^\epsilon C^\eta + A^\epsilon B^\epsilon C^\eta.$$

Now, if $C^\eta S\phi$ could be proved $= \eta$, we should have $S\phi : C^\eta$, and then C^η would be a legitimate conclusion from ϕ . But

$$C^\eta S\phi = C^\eta(A^\eta + B^\epsilon + A^\epsilon B^\epsilon) = C^\eta S(A_B),$$

which, without further data, can not be proved $= \eta$. Hence, we cannot from ϕ draw the conclusion that C is possible.

Again, if $C^\eta S\phi$ could be proved $= \eta$, we should have $S\phi : C^\eta$, and C^η would then be a legitimate conclusion from ϕ . But $C^\eta S\phi = A^\eta C^\eta$, which, again, without further data, cannot be proved $= \eta$. Hence, we cannot from ϕ conclude that C is impossible. Thus we have not sufficient data from which to infer either C^η or its denial C^η . In other words, though C must either be possible or impossible, we cannot from the given statement $A_B(C : A_B')$, without some additional premise, ascertain which alternative is the true one.

In obtaining the results $W\phi$ and $S\phi$ I assumed a proposition which is not quite self-evident, namely, that the data $A_B(C : A_B')$ constitute an impossibility when A, B, C are all three variables. This proposition I now proceed to prove.

No implication $a : \beta$ can be a variable¹ when (as in the data of this problem and throughout the preceding argument) its antecedent a and consequent β are both singulars; that is to say, when each letter denotes only one statement, and always the same statement, be it of the class ϵ or η or

¹ This is a point which I did not make sufficiently clear in my recent paper in the *Proceedings of the Mathematical Society* when discussing $W(a : \beta)^\theta$ and $S(a : \beta)^\theta$. The implication $a : \beta$ would be a variable if a and β were taken at random repeatedly out of statements belonging some to the class ϵ , some to the class η , and some to the class θ . For another case in which $a : \beta$ would be a variable, see the concluding paragraph of this paper, preceding the note on a logic of 3ⁿ dimensions.

θ . Hence, $a : \beta$ being synonymous with $(a\beta)^\eta$ must be either $= \epsilon$ or else $= \eta$; it cannot be $= \theta$. This being assumed, we have to prove that

$$A^\theta B^\theta C^\theta A_B (C : A_B') = \eta.$$

Since, by hypothesis, the premise A_B is an implication with *singular constituents*, it must be either $= \epsilon$ or else $= \eta$. If $A_B = \eta$, the data contain an impossible factor A_B , and therefore must $= \eta$, which was the proposition to be proved. On the other hand, if A_B does *not* $= \eta$, then A_B must $= \epsilon$. Hence, A_B' must $= \eta$; otherwise we should both have $A_B = \epsilon$ and also $A_B' = \epsilon$, which would imply A^η , which would contradict our assumption A^θ . Thus we have $A_B = \epsilon$ and $A_B' = \eta$, which reduces $A^\theta B^\theta C^\theta A_B (C : A_B')$ to the form $A^\theta B^\theta C^\theta (C : \eta)$, which implies C^η , which contradicts our assumption C^θ . Hence, whether we take $A_B = \epsilon$ or $A_B = \eta$ (the assumption $A_B = \theta$ being here inadmissible) the statement $A^\theta B^\theta C^\theta A_B (C : A_B')$ reduces to η ; *quod erat demonstrandum*.

A problem of somewhat more complexity is the following: Let ϕ denote the implication

$$u_{a,\beta} (a, \beta)_v : u_v,$$

which, by definition, is equivalent to

$$(u_a + u_\beta) (a_v + \beta_v) : u_v,$$

and may easily be proved equivalent to

$$u_a \beta_v + u_\beta a_v : u_v.$$

For what values of u, a, β, v (expressed in terms of ϵ, η, θ) is ϕ true? For what values false?

The answers which I find are (1) that ϕ is true for every term in the disjunctive statement

$$u^\eta + v^\epsilon + a^\epsilon \beta^\epsilon + a^\eta \beta^\eta + u^\epsilon v^\eta (a, \beta)^\theta + u^\epsilon v^\theta (a^\theta \beta^\epsilon + a^\epsilon \beta^\theta) + u^\theta v^\eta (a^\theta \beta^\eta + a^\eta \beta^\theta),$$

and (2) that ϕ is false for every term in the product

$$(u^\epsilon v^\epsilon + u^\theta v^\eta) (a^\epsilon \beta^\eta + a^\eta \beta^\epsilon).$$

These two results, I believe, include all cases; that is to say, the first result is the value of $W\phi$, and the *denial* of the second result is the value of $S\phi$. To show how any case may be verified let us take the term $u^\theta v^\eta a^\eta \beta^\epsilon$ in the second result. If this term be correct ϕ should reduce to η when we put $u = \theta, v = \eta, a = \eta$, and $\beta = \epsilon$. Substituting these values in the third form of ϕ , we get

$$\theta_\eta \epsilon_\eta + \theta_\eta \eta_\eta : \theta_\eta \text{ which } = \eta\eta + \epsilon\epsilon : \eta = \epsilon : \eta = \eta,$$

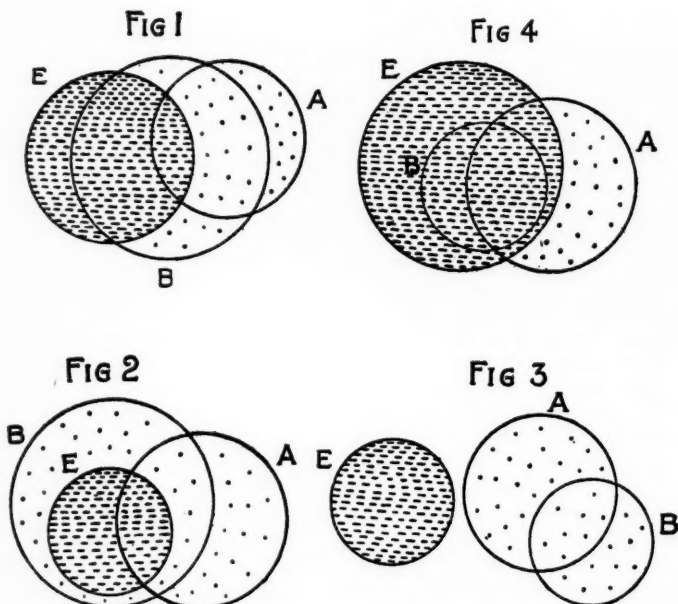
as we should have.

Many persons who are ready enough to admit the utility of mathematics profess scepticism as to the advantages of symbolic logic. To these I would remark, firstly, that the latter is the more general science and includes the former; and, secondly, that, apart from its aid to accurate thinking in general, symbolic logic has already (as shown in my first paper in the *Proceedings of the Mathematical Society*) rendered important assistance in one of the most difficult and perplexing parts of mathematics. It was a true instinct that led Boole to attempt the construction of what he called a "General Method in Probabilities," founded on symbolic logic; but unfortunately Boole allowed an essentially false principle to vitiate his whole reasoning, so that his elaborate "General Method in Probabilities," into whose service he presses the highest branches of mathematics, becomes, alas! from this one flaw, a gigantic and imposing fallacy. His solution of the "challenge problem" which he proposed as a test of the power and efficacy of his method I have proved to be wrong in my fourth paper in the *Proceedings of the Mathematical Society*; and, in my controversy with Dr. MacAlister (see vol. xxxvii. of *Mathematical Questions with their Solutions from the Educational Times*), I think I have succeeded in laying bare the subjective fallacy over which Boole and many others after him have stumbled into error. "*When the probabilities of events are given,*" says Boole, "*but all information respecting their dependence withheld, the mind regards them as independent*" (*Laws of Thought*, p. 256). And further on he says: "*We must regard the events as independent of any connexion beside that of which we have information*". In other words, when we have no information as to any connexion between A and B, but know (from observation or otherwise) that the chance of A happening is a and that of B happening is b , we may infer that the chance of *both* happening is ab —an utterly fallacious principle. Cases in which, from these data, the chance of the concurrence is ab , and cases in which it is *not* ab , may be exhibited to the eye by a simple geometrical construction, fixed and unvarying, as I have shown in my fourth paper in the *Proceedings of the Mathematical Society*, so that the chance remains always the same whether or not "the mind regards the events as independent".

No one can admire Boole's *Laws of Thought* more than I do. As a philosophical and speculative work it is brimful of profound thought and original suggestions, while its style is charmingly lucid and attractive; but none the less must

I express my opinion that the work is weakest where it is generally supposed to be strongest, namely, in the power and originality of its logical calculus, and that what Boole himself, and others after him, considered his greatest achievement and "the crowning triumph of his method," namely, the application of his calculus to probability, is precisely that portion of his work in which his failure has been complete and absolute. Boole may not inaptly be compared to Shakespeare. Both authors possessed a remarkable *analytical* insight into the workings of the human mind; the one of its secret motives and passions; the other of the subtle laws of its intellectual operations; yet both—the one judged by his plays, the other by his *Laws of Thought*—showed but little *constructive* ability. Just as Shakespeare limited himself to skilful adaptations to his purpose of the dramatic plots of preceding playwrights or of the accepted facts of history, so Boole limited himself to skilful adaptations to new uses of the rules and formulæ which he found ready to his hand in mathematics. Boole undoubtedly showed great originality and ability in his *application* of these rules and formulæ, and an unfortunate thing I believe it has been for symbolic logic that he did show this originality and ability. I cannot help thinking that the seeming success which attended his efforts to squeeze all reasoning into the old cast-iron formulæ constructed specially for numbers and quantities has tempted many other able logicians to waste their energies in the like futile endeavours; when those energies might have been employed with far greater chances of success in inventing new and independent formulæ, more elastic and more suitable for the highly general and widely varying kinds of problems which are destined to enter more and more largely into the ever-expanding subject of Symbolic Logic. As regards the introduction of absolutely new symbols, such as Schröder's \equiv and Pierce's \prec , I think it should be avoided as much as possible. Generally speaking, it is better to put to fresh uses the familiar symbols of old acquaintance than have recourse to strangers. This may be a conservative prejudice on my part, but it is a fact that I have myself introduced no new symbol, though I have freely exercised my right of definition and interpretation as regards some of the symbols and combinations of symbols already in common use among mathematicians. The symbols $+$, $=$, $:$, $::$, with subscripts, indices, and commas, are all old friends; while the symbol $!$, though a more recent arrival on mathematical territory, has been there long enough to have acquired the rights of naturalisation.

Diagrammatic Illustrations. The accompanying figures will help us to understand, and fix in our mind, the meanings of the symbols $a : \beta$, $\frac{a}{\beta}$, $a' + \beta$, $a\beta'$, and others which we have been discussing in the preceding pages.



Consider first Fig. 1. Let the collection of points in the circle E be our *universe of discourse*, all points not included in E being left out of account. Let a point P be taken at random in the collection E, and let the symbols ϵ , a , β , respectively assert that P will belong to the collection E, that it will belong to the collection A, that it will belong to the collection B. From the disposition of the circles in the case we are considering (Fig. 1), this random point P may or may not turn out to be in A, and it may or may not be in B, so that the statements a and β may be true or false; and if the experiment be repeated often enough, each of the two statements will be sometimes true and sometimes

false. Hence, in this case a and β are *variables*, and so are their denials a' and β' . For Fig. 1 therefore we have $a^\circ\beta^\circ$.

Next consider Fig. 2; and as before let P be taken at random in the collection E ; while, as before, ϵ , a , β , respectively assert that P will belong to the collection E , that it will belong to the collection A , that it will belong to the collection B . As before, a may turn out true or false, but this time β *cannot be false*, since the point P is restricted, by hypothesis, to the collection E , which is wholly included in the collection B . In this case therefore a is a *variable*, but β is a *constant* of the class ϵ or *certainities*; so that for this figure we have $a^\circ\beta^\epsilon$.

Next consider Fig. 3. Here neither a nor β can possibly be true, since the collections A and B are both excluded from our universe of discourse; so that we have $a''\beta''$.

Now let us consider the implication $a : \beta$ and its implied alternative $a' + \beta$. The alternative $a' + \beta$ is a *certainly* in Fig. 1, for here its denial $a\beta'$ is an *impossibility*, as no point taken at random in the collection E can, at the same time, belong to the class A and *not* belong to the class B . In Fig. 1 therefore we have $(a\beta')''$, which is equivalent to $(a' + \beta)^\epsilon$ and also to $a : \beta$.

In Fig. 4 the alternative $a' + \beta$, and therefore also its denial $a\beta'$, are *variables*; for in Fig. 4 either statement (*i.e.* the alternative or its denial) may be true or false; and if the experiment of the random point P be repeated often enough, each will be sometimes true and sometimes false. The statement $a' + \beta$ is true, and its denial $a\beta'$ false, every time P happens *not* to be in A , and also every time it happens to be in B ; and *vice versa*.

In Fig. 1 not only have we $a : \beta$ true (with its synonym a_β) but also the *causal* implication $\overset{a}{\beta}$, which implies both a_β and β^a by definition. But this is not the case in Fig. 2; for in Fig. 2 we have β^ϵ , as already shown, which contradicts β^a ; so that in Fig. 2 the *causal* implication $\overset{a}{\beta}$ is false.

In Fig. 4 the *general* implication $a : \beta$, and therefore also the *causal* implication $\overset{a}{\beta}$, are false. For $a : \beta$ means $(a\beta')''$ and asserts that $a\beta'$ is an *impossibility*; whereas in Fig. 4 we have the denial of this, namely $(a\beta')''$, which asserts that $a\beta'$ is a *possibility*.

In Fig. 3 the *causal* implication $\overset{a}{\beta}$, and therefore also the

general implication $a : \beta$, are true; for in Fig. 3 we have $(a\beta')^n\beta^a$; the compound statement $a\beta'$ being an *impossibility* because of its impossible factor a , and β being an *uncertainty* because it is here an *impossibility*—the stronger statement implying the weaker.

Throughout the preceding discussion, in considering the varying positions of the point P, we assumed the collections of points E, A, B to be fixed and always the same; so that while the statements $a, \beta, a' + \beta$, and $a\beta'$ might be *variables*, the implication $a : \beta$ was always a *constant* belonging, according to the positions of the *fixed circles*, either to the class ϵ or to the class η . But if we abandon this assumption of *fixedness* and suppose the circles E, A, B to be formed *randomly* under some limiting conditions—such, for example, as taking two random points in some given area and considering the straight line joining them as the diameter of a random circle—the case will be altered. If this experiment be repeated often enough, the implication $a : \beta$ will now be sometimes true and sometimes false; that is to say, it will be a *variable*, and in some cases it will be a variable whose chance of being true admits of accurate calculation.

Note on a Logic of 3ⁿ Dimensions. The preceding three-divisional scheme of logic is more especially suited for problems in probability, the statements a^e, a^n, a^d respectively asserting that the chance of a being true is *unity*, that it is *zero*, that it is *less than unity and greater than zero*. On this understanding, the symbol $a : \beta$, being synonymous with $(a\beta')^n$, asserts that the chance of the truth of the compound statement that affirms a while denying β is *zero*. But this is not always the meaning of the word 'implies' in mathematics. When we say that a formula a (such as Taylor's or Maclaurin's Theorem in the Differential Calculus) *implies* another formula β (such as the expansion of $\sin x$ or $\cos x$ in Trigonometry) there is no question of *chance* or *probability*: both formulæ are always true, and what we really mean is that β is a particular case of a . Similarly, when we say that the equational proposition or formula $a^2 - b^2 = (a - b)(a + b)$ *implies* the equational proposition

$$763^2 - 761^2 = (763 - 761)(763 + 761)$$

we mean that the numerical statement is a particular case of the algebraic one. So in logic we have

$$\phi^e(a, \beta) : \phi^e(a_1, \beta_1) \phi^e(a_2, \beta_2);$$

that is to say, if the formula $\phi(a, \beta)$ be valid for *all* values

of a and β , it must be true for the particular statements a_1, β_1 and also for the particular statements a_2, β_2 , whatever these may be. In other words, $\phi(a_1, \beta_1)$ and $\phi(a_2, \beta_2)$ are particular cases of $\phi(a, \beta)$.

Again, let us suppose that we wish to establish some proposition x in mathematics or physics about whose truth we do not feel quite certain, and that we find its validity to depend upon the truth of another proposition a which seems easier to investigate, but whose truth is also uncertain. Here, as before, we may write $a : x$, and here also we have the element of uncertainty, as in problems of chance; but the uncertainty in this case is purely *subjective*, and can hardly be expressed by a numerical ratio;¹ for the chance of a being true is in this case always the same, *unity* or *zero*, whether we choose to consider it so or not, and our *uncertainty* is as to which of the two values we ought to assign to the unknown chance—if indeed the term *chance* is not here altogether a misnomer. To meet all these cases and bring them within the sweep of one logical scheme, we must have a logic not of three dimensions only, but of 3ⁿ dimensions. Thus, let κ denote every statement *known to be true*, λ every statement *known to be false*, and μ every *doubtful* statement, *neither known to be true nor known to be false*; then, any formula $\phi(\epsilon, \eta, \theta)$ of the scheme described in the preceding pages may be converted at once,² by simple substitution of letters, into a formula $\phi(\kappa, \lambda, \mu)$ of this new and more subjective scheme. And these two corresponding three-dimensional schemes may be united into a *nine-dimensional* scheme. For example, $a^{\kappa\kappa}$ would express $(a^{\kappa})^{\kappa}$ and assert that a^{κ} is *known to be true*, or, in other words, that a is *known to be always true*; while $a^{\kappa\epsilon}$ would mean $(a^{\kappa})^{\epsilon}$ and assert that a^{κ} is *always true*, or, in other words, that a is *always known to be true*; which is quite a different statement from $a^{\kappa\kappa}$. The statement $a^{\kappa\kappa}$ (or a is *known to be always true*) might apply to a difficult mathematical proposition whose truth I had just discovered, but which I might afterwards forget; and to such a proposition $a^{\kappa\epsilon}$ (or a is *always known to be true*) would not apply. To any well-known truism, or any simple formula, like $(a + b)x = ax + bx$, which I could hardly, with a healthy brain, ever forget, both statements $a^{\kappa\epsilon}$ and $a^{\kappa\kappa}$ would apply.

¹ Dr. Venn, in his *Logic of Chance*, holds substantially the same view; while Boole and De Morgan maintain the *subjective fallacy*. As a clear exposition of first principles Dr. Venn's work is unsurpassable.

² For example, the formula $(a + \beta)^{\epsilon} : a^{\epsilon} + \beta^{\epsilon} + a^{\theta}\beta^{\theta}$ in the one system becomes $(a + \beta)^{\kappa} : a^{\kappa} + \beta^{\kappa} + a^{\mu}\beta^{\mu}$ in the other.

Another three-divisional scheme would be the following: We might agree to make $\phi^a(x, y)$ assert that the formula $\phi(x, y)$ is true for *all* values of x and y ; $\phi^n(x, y)$ that it is true for *no* values of x and y ; and $\phi^s(x, y)$ that it is true for *some* value or values of x or y , or both, but not for all. These three schemes might, in like manner, be united into a twenty-seven-divisional scheme of symbolic logic; and so on *ad libitum*. It is evident that a logic of 3^n dimensions, constructed on these lines, though complicated for high values of n , would be in no way transcendental, like the geometry of a four-dimensional or n -dimensional space, but would be founded upon, and give results in accordance with, the daily and ordinary facts of our consciousness and experience.

[The problem discussed on page 502 has been discussed by its proposer in *MIND* for January, 1895.—EDITOR.]

IV.—SUGGESTIONS ON ÆSTHETIC.¹

BY E. H. DONKIN.

MOST of the modern writing upon Æsthetic which I have read seems to me to present great difficulties. The aim of the following suggestions is to offer a few lines of thought and points of view which might possibly help towards clearness and thoroughness in dealing with this subject.

I am able to understand and accept "the general formula of unity in variety" (Bosanquet, *Hist. of Æsthetic*, p. 4). The beauty revealed to the eye in a kaleidoscope is eminently a case of unity in variety.

But I would wish to have some reason assigned why unity in variety should commend itself to me as it does. I offer the following account.

Imagine that a consciousness could be made perfectly homogeneous in itself: imagine sameness as lording it completely in consciousness. Then that consciousness must shrivel up to a point. Ego would shrink to an atom; to zero. But now imagine a difference, a heterogeneity, introduced, in any form or any degree, and you necessarily expand the atom; it has parts; there are conscious states (not one state only); Ego begins to appear. But even as Ego appears, Ego is contradicted, thwarted: the duality in consciousness conflicts with the unity of Ego. Now minimise the difference in consciousness to the utmost extent consistently with keeping a difference: and the Ego realises its ideal of unity with the least possible opposition, the least possible jarring of the duality on its unity. Such an effect, I would suggest, is what we call a "beautiful" one. It must, however, be at once pointed out that the difference in consciousness must not be diminished to within certain limits. To gaze on and on at a single colour and let consciousness be differentiated merely by the temporal transition as moment succeeds

¹The writer is indebted to Mr. J. H. Muirhead for criticisms and suggestions.

moment, would evoke a maximum of sameness and a minimum of difference in consciousness, but would not give a sensation of beauty; it would rather tend to coma. The differentiation must be of a further kind. More than one colour, for instance, seems needed. And there are in all cases similar limits to the minimising of the difference. I do not here inquire into the laws of such limits; I merely offer this account of the reason why sameness in difference commends itself to us, *viz.*, because on the one hand the Ego is maintained, there being fulfilled the indispensable condition of a certain differentiation in consciousness; and on the other hand this differentiation is reduced to the least degree that suffices, so that the Ego is as it were maintained with the least friction. If the friction, the duality, is further diminished, Ego begins to vanish into unconsciousness.

Passing on from this subject, I will state the general view which my various suggestions are intended to support. It is (1) that all beauty is essentially the same, whether it be the beauty of a geometrical pattern, a rainbow, a waterfall, a cliff, a poem, a statue, or a tragic drama: (2) that the formula "unity in variety" is as applicable to all such cases as it is to the simplest instance of formal beauty.

These statements, however, will seem to conflict with recognised authority. The so-called beauty of individual expressiveness seems to be dwelt on with great emphasis by writers, and is apparently set over against formal beauty as different from it, nay, as in some sense opposed to it; and this beauty of expressiveness seems to be regarded as the higher, and as being the beauty of the future: the beauty that is to supersede the bygone formal types.

The account of the matter which I would offer is different. I would make the fact of "expressiveness," the fact that, *e.g.*, a statue "expresses" some aspect of humanity, and the like, secondary. I would make unity in variety the paramount feature, the essence of beauty of every kind. I would find two exactly parallel forms of unity in variety in, say, a symmetrical ornamental pattern, and a statue: the two halves of the pattern, though different, are yet precisely symmetrical and the same; the real man and the stone statue, though different, are yet precisely similar and the same. This is a crude statement, and needs much amplification, but it will for the present make my meaning clear.

My view is as follows: Both races and individuals in their earliest stages love those modes of beauty in which extreme sameness in difference predominates; in which there is a pair of items that perfectly match (or, of course,

a group of pairs, etc.). But it is also the fact at an early stage, both with races and individuals, that they incline to accept pairs of items which do not completely match, as though they did match, and to feel them as beautiful. I do not attempt to say which mode of beauty, the perfectly or the imperfectly symmetrical, is historically prior.

Given this capacity to accept incomplete equivalents as though they were complete, the sense of beauty has endless possibilities open to it; and the so-called beauty of individual expressiveness, as I understand it, is simply beauty of this developed kind.

The question at once suggests itself, how this willing acceptance of the unsymmetrical arises. The question is perhaps the most profound and perplexing in all Æsthetic. Instead of attempting to answer it here, I will for the present merely give examples of the fact; instances of the contented acceptance of inadequate equivalents, trying in each case to detect what it is that persuades the mind to act as it does. A careful examination of particular examples might perhaps be employed with advantage more frequently in dealing with æsthetic problems.

The beauty of any imitative art, say statuary, is essentially illustrative of what has been said. It is in the first place a true case of sameness in difference; to put the matter crudely, the two items that are the same are the real man and the stone statue: their difference lies in the fact that one is living flesh and the other lifeless stone. To express the matter less crudely, we have, in the case of a statue that deserves admiration, two items: the first is the quality of humanness, so far as we have previously learnt to know it (the artist can only reveal to us what we have previously, even if unawares, learnt); and the second is the statue, which, though nothing but stone, faithfully represents this quality. And the point of importance is this: to be what we call a good work of art the statue must be visibly an insufficient equivalent for a human being; it must not deceive us into thinking that a real man is there. The subtle human quality must persist onwards into the antagonistic medium of stone. There lies the secret of the welcomeness of imitative art: it must display resemblance through antagonistic difference; and Théophile Gautier hit the philosophic nail on the head in his lines on Art, beginning:—

Oui, l'œuvre sort plus belle
D'une forme au travail
Rebelle.

Whether the particular form represented is within itself beautiful is a separate question ; the point I here emphasise is the mere truth to reality, shown in a medium adverse to the reality.

Why do we so value this? What is the psychological analysis of the "antagonism" in the teeth of which we thus love to see a quality holding its own? Have we here a case of the mere pleasure of recognition as referred to by Aristotle in the *Poetics*? Or are we to say that the inadequacy of the second item sets the imagination at work to fill up the defects, thereby making room for a particular mental activity? Or is there any merit in the following suggestion: when the same quality holds its own from one set of particulars to another, is the amount and degree and complexity of oneness subsisting between the two sets of particulars the measure of the complexity and depth of the felt oneness of Ego as yielded by the two conscious states; and is there in some sense a deeper oneness when the oneness is enhanced by something that acts as a foil to it? Is Ego's realisation of its own unity a sort of activity which like other activities needs something to overcome?

Let us pass to other examples, in the hope of gaining further light. An interesting one is the principle of the catalectic in metre.

One of Swinburne's sea poems is written in stanzas of eight lines each. The lines proceed in pairs: in each line there is a triple ictus—three emphasised syllables. In each stanza this continues uniformly until the eighth line, which, instead of the threefold ictus or the nine syllables we expect, suddenly presents us with only a double ictus or five syllables.

Here is a stanza:—

The delight that he takes but in living
Is more than of all things that live;
For the world that has all things for giving
Has nothing so goodly to give:
But more than delight his desire is,
For the goal where his pinions would be
Is immortal as air or as fire is,
Immense as the sea.

Now it appears to me that the ear distinctly accepts the shorter line as an equivalent for the longer line it had expected; and that, further, it finds the shorter line a welcome though insufficient equivalent. It may be objected that the shorter line is not felt as an *equivalent* for a longer one, but as a welcome *variety*. This is, for me, an understatement. My ear seems to exult in the very fact that the less fills the

place of, and is, the greater. I am exhilarated by perceiving victorious power: trammels fall away; what is not, nevertheless is; the half is indeed more than the whole. I need phrases like these to describe my sensation; to speak of the gratefulness of mere contrast is to my own feeling meagre.

Do such cases reveal any part of the secret? Can it be that the sense of victory and freedom which we gain in life generally through making the insufficient suffice, is what leads us to be ready to make the insufficient suffice in æsthetic? For it must be remembered, of course, that the sense of beauty develops, and varies; it seems to have been from the first and still to be largely modified, or nourished, or again stifled, by extraneous causes.

Before proceeding, let us place this last instance and the previous one side by side, for the sake of clearness: different as they are, they are capable of resting on the same principle.

1. We welcome the subtle human quality when it persists onwards into the contradictory medium of stone.

2. We welcome the subtle quality that first appears as nine-syllabled-ness when it persists onwards into the contradictory medium of five-syllabled-ness.

Precisely the same account should be given of the tendency in modern art to specialise the general or the ideal. This tendency appears in many forms. Suppose you are about to see one of Shakespeare's greatest plays performed, and that the greatest of living actors, whom you have never yet seen, is to present the chief character. You will, consciously or unconsciously, expect an ideal rendering: *the* rendering. Hitherto you have only seen makeshift Hamlets: this will be Hamlet indeed. When you hear the play, you may possibly find what was to have been an ideal rendering specialised by all kinds of particularities of manner, voice and reading, which the actor by no means tries to subdue in himself, but rather accentuates. He will give you Hamlet in an extreme of individuality; and you will not, now-a-days, be displeased. Once more, quality holds its own in spite of difficulty: the ideal can be maintained even within the special. Sameness holds good in the extreme of difference.

In every case of "beauty of expressiveness" I would give a similar analysis. I do not feel that the mere fact of expressiveness in itself constitutes beauty. Beauty arises, not merely when we have the nature of a thing expressed, but when we have concurrently present to consciousness that nature, and a true representation of it in a medium other than its own; that is, an adverse medium. I am far from supposing that I have penetrated deep in using such phrases

as "adverse medium"; I merely seek to mark out an obscure subject and to indicate a point where it seems a little less impenetrable than elsewhere.

There is an interesting class of questions which may be referred to here, though they do not seem to belong to the same category as the last. There is a certain kind of beauty of natural scenery, the taste for which is perhaps modern, and which may be called expressive. A view catches the eye as interesting, suggestive; it is not so much a symmetrical whole as a fragment or glimpse suggestive of a symmetrical whole which is not all seen. The analysis of this kind of attractiveness is well worth attempting.

When I am surveying a landscape, and call it as a whole beautiful, I do so because here as in every case of the beautiful there is a certain dualism, with part matching part. In the conventionally beautiful view there will probably be a certain degree of actual symmetry, one feature correctly balancing another. In the suggestive "bit" I do not see this actual symmetry; I see a glimpse which seems incomplete and suggests something more. Yet even taken alone it pleases me. Now the "bit" has features in itself, though they do not seem to match one another; taken together, they might match some other feature not now visible: as it is they have to do duty as the mutually ill-adapted parts of one whole. I accept these, however, as sufficient equivalents for one another; as symmetrical, though they do not really balance; as displaying true sameness in difference, though they lack sameness. And why?

If the view is in a painting, and I am a spectator of it, I have no hesitation in giving my answer. I am ready to believe, in such a case, that there must be a symmetry or sameness in the features, not perceived by me but perceived by the artist, which led him to select just that portion of the view for his picture. Belief in an unperceived symmetry or balance or relevance, on the ground that the artist, our fellow-man, must surely have perceived it since he so composed his work, has, I am convinced, enormous influence on our æsthetic appreciations in art.

But as to the artist himself; what leads *him* to select one fragmentary view and reject another? Does he in truth perceive a symmetry where we do not? On this difficult question I can but make suggestions. Possibly the artist, where he pre-eminently succeeds in such compositions, does violence to symmetry only in some definite and distinct manner, marking off his unsymmetry and making it specific; perhaps introducing copious subordinate symmetries, so that

it is the more easily submitted to. Perhaps also he is led to do violence to conventional symmetry just in so far as he has a natural veneration for the power to make the insufficient suffice in other departments of life; or according to his natural love of freedom and revolt. Let us see what evidence can be had elsewhere.

It is strange to find the same analysis applying again in other very different regions of æsthetic. Take the beauty of the human face. There is a beauty of a faultlessly symmetrical kind; there is also a beauty which we describe as depending on individuality and expressiveness. What is this expressiveness? If you could define what it expresses it would not be there; it depends on the hiddenness of its own meaning; if you could fully sum it up by saying that it expressed gentleness, or endurance, or trust, or any other quality, you would not feel in it the æsthetic charm you do feel. What is the clue?

I would suggest that this case is like that of the artist doing violence to strict symmetry in some distinct specific manner and thereby gaining an easy acceptance. When in a composition, or in a face, there is what may be called a perverse insistence on some one subtle defiance of symmetry, or a unity and singleness in the character of the contradictions; then, as when among the vague outlines of a stone you see lines that show insistence, uniformity, and say that some primitive human being was once at work on that stone with a purpose or meaning; so we feel that the face must have a meaning, and mean a character; *one* character; it is too perversely thus, not to have a reason behind its perversity. This account is in reality coincident with that given above of the beauty of a statue, though different phrases have been employed. I said of the statue: "We welcome the subtle human quality when it persists onwards into the contradictory medium of stone". Here I have two items: (1) human quality known in man; (2) human quality seen in stone; they are the same in spite of difference, and æsthetic quality, that is, beauty, is yielded. The same formulas may be applied even to the expressive face. In the face we have a contradictory variety of factors; the features are irregular and unsymmetrical. Yet these unsymmetrical factors are accepted as expressive, relevant, symmetrical with an unseen symmetry. Thus there is a sameness in spite of contradiction, for one quality (the hidden meaning or symmetry) persists onwards from one factor to another, and thus æsthetic quality, or beauty, is yielded.

I wish to say distinctly that I offer this analysis as a mere attempt to move in the right direction, though the goal may be distant. If my formulas were applied concretely to the eyes, nose, mouth and chin of some particular expressive face, they might seem like a pick-axe offered for use in watch-making. But they may none the less be a rough outline of the truth.

The timbre of certain musical instruments and of certain voices seems to be a case curiously illustrative of this whole subject. Compare the timbre of the oboe and the flute. The latter we should probably call full and round; the oboe's quality might be described as harsh, or as pinched and strained. Yet the æsthetic rank of the oboe in the orchestra would be generally considered as higher than that of the flute. The flute is sweet but common-place; the oboe means pathos and depth. And to my mind there is an inkling of similarity between this case and that of the expressive but irregular face, or the interesting but incomplete view, or the line that is the better for being too short. The oboe's timbre may perhaps be said to sound as though some of the tone had been withdrawn: as though the cord had had one of its strands taken away through all its length. (Can physicists say whether there is any foundation in fact for this impression?) Thus the oboe has a pathetic suggestiveness; it is expressive.

But is this to be accounted for on the same theory as that suggested for the expressive face? Different as the instances seem, they are fundamentally similar. And here another very beautiful class of æsthetic material may be referred to as illustrating both. The oboe's timbre may be grouped together with the short fragments of lost ancient poetry.

Have not the fragments of Sappho or Ennius a distinct æsthetic charm through their very fragmentariness? Or when Tennyson's "Morte d'Arthur" is presented as a fragment, has it not a glamour which it loses in the completed idyll? And the reason seems to be that we are willing to credit the fragment with the splendour that would have belonged to the completed poem, and that imagination endows this non-existent poem with ideally supreme splendour: thus in our former phrase, the quality of ideally supreme splendour persists onwards from the one factor, the imagined poem, to the other, the fragment, in spite of the antagonistic difference, *viz.*, fragmentariness, which so cruelly hampers the forlorn fragment: just as the quality of nine-syllableness persists onwards into the five-syllabled line. And

similarly may we say that the ideally glorious unheard tone of which we dream that the oboe's timbre is an inadequate representative, persists onwards in spite of antagonism into the defective actual tone; and that the one unknown quality persists onwards through the features of the unsymmetrical face in spite of their unsymmetry, that is, resistance to oneness of meaning?

My aim, it will be seen, is to bring every kind of beauty of expressiveness under the very same formula, sameness in difference, which applies to strictly formal beauty. The beauty of musical harmonies seems to me on analysis to lead to the same result; but the subject would perhaps be better treated by itself. The æsthetic quality of an apt quotation—the rare literary flavour it disseminates—seems to be in reality another case of the same kind. The noble effect of Burke's quotations from Horace seems due to our sense of the persistence of quality from the one distant sphere right on to the other, in spite of the remoteness—the sphere of modern political life, and the sphere of ancient bygone poetry.

I wish now to indicate another line of thought that seems worth following out in connexion with the above.

Take these two philosophical topics, "æsthetic" and "cause". How do they stand in relation to one another—if there is a relation between them?

There is one marked distinction that disunites the two. There can be no consciousness, and therefore no æsthetic consciousness, without concurrences—parallel, co-existent modes of consciousness. Æsthetic is rooted in duality. On the other hand, cause is rooted in identity, that is unity: unity passing on into different forms indeed, but, *qua cause*, absolutely one. The genuine causal thread of antecedent . . consequent, as we must conceive it, must be infinitely thin; nay, it must be infinitely short; a mere atom; not admitting of variety. Hence, *in itself*, it could not admit of consciousness. What enables consciousness, or Ego, to awake is some concurrent datum introduced alongside of the first.

Æsthetic then may be said to be an affair of concurrences and not of causal processions or sequences. It is true that line follows line in poetry; but line does not cause line; and to the æsthetic consciousness the impression left by the previous line must be concurrent with the impression made by the next.

Now this contrast which I have attempted to indicate between causal sequences, and concurrences, in reality coincides with that which may be drawn between the laws of

nature and the original arrangement of the conditions of the universe. "Fire destroys life" represents a law or laws of nature. "That friend of mine was burnt to death" is felt to be a fact that traces its ancestry not merely to laws of nature, but to the particular arrangement in which those laws were first set going relatively to each other. It is true that we cannot but believe that this relative arrangement, or the actual form that the universe has taken, was *caused*: that is, arose in obedience to *law*. It is also true that we must believe that all natural laws arose out of, and are forms of, that one ultimate cause or law. But at the same time our minds cannot but draw a marked distinction between the array of "natural" laws, or causes, and the one ultimate law, or cause. We conceive of the former as in some sense comprehensible; of the latter as, to our human intellects, incomprehensible. We can believe that "arsenic poisons" represents a law, cause, or identity, which we could grasp: we can imagine that with senses indefinitely extended we should perceive that at the heart of "arsenic poisons" there lurks a palpable truism. But "the universe is thus" represents an ultimate law, cause, or identity that transcends our powers of comprehension.

Now under which head are we to place those concurrences which are the necessary conditions for æsthetic consciousness? are the main factors in them natural laws, or the one ultimate law which arranged the primary conditions as it did?

I seem to feel a far closer kinship between the concurrences that yield æsthetic consciousness, and the primary arrangement of the universe, than between these concurrences and natural laws. I do not think that this is so obviously true, though it is true, in the case of natural beauty: Wordsworth's "thoughts that lie too deep for tears" do not come to every one at the sight of the meanest flower that blows. But it seems far more evidently true of the beauty of art. Art constantly selects features to group together which visibly lie too far apart for any chain of natural causation to link them all together; to get a common ancestor you must go back to the original inscrutable constitution of the universe. This may indeed be said of any group of phenomena, whether chosen by art or not. But the tendency of art is to leave natural causes in their native confusion and obscurity, and to thrust on the spectator's attention the one great absorbing topic, the mysterious unknown meaning of, or reason for, the All being as it is. Take Tennyson's "Break, break, break"—as a whole,

and ask what common relevance justifies the connecting of the items in this sentence—

Break, break, break
At the foot of thy crags, O Sea!
But the tender grace of a day that is dead
Can never come back to me.

Why the "but"? What makes the utterance rational except a reference to the inscrutable established constitution of the universe?

And a question of great moment here arises. What is the attitude of art in face of this great mystery? For according to the attitude will be, to a large extent, the good of art as a factor in life and character.

The answer, if one endeavours to catch the drift of art at its highest, seems to be that its influence in this matter tends to be salutary. The handling of pain, in art, is by the very process that art follows made indirectly significant. Art may be imagined as speaking to us in the following words: "You see these phenomena, evil and good, which occurred, or the like of which occurred, in the real world. They are samples of the whole cosmos: they bring you face to face with the great problem; the problem of evil. But I place them before you in such a way that the evil is neutralised to you while you look, for it combines with the good to make a perfect whole. In my art-work you would prefer to have the presentation of evil rather than not? You could not dispense with it? Then in this fragment of an art-cosmos the problem of evil vanishes. How it vanishes in the real cosmos I cannot tell; I do but present a cosmos which can so deal with these phenomena, evil and good, as to leave no problem of evil."

There is a certain misconception which must be guarded against, and which may be mentioned parenthetically here. I have implied that "beauty" and "cause" are alien subjects. It may be objected that the scientific discovery of a cause or a natural law may arouse an æsthetic feeling; that the proof of a theorem is often called beautiful; and the like. I would reply that such cases seem to me perfect examples of what I have said above. The theorem of Archimedes as to the sphere and the cylinder is a good instance. Assuming, though I am no mathematician, that this may be called beautiful, I would express the reason why we call it so as follows. In a region where the quality of incommensurability seemed to be paramount, *viz.*, as between the apparently incommensurable sphere and cylinder,

the opposite quality of commensurability is found nevertheless to hold its own with complete strength. Thus we have, as usual, two items : (1) the apparent incommensurability of sphere and cylinder, (2) their proved commensurability.

These two items, though so highly opposed to each other, are yet found to coincide, and to be in fact one ; for where the first is, there the second is. Thus as before we have unity subsisting in spite of antagonistic variety.

In this way natural law, or cause, like various other qualities, can supply material for the æsthetic sense, by subsisting in spite of antagonism : though any one cause as strictly conceived, looked at *alone and in itself*, is *nil* to the æsthetic sense.

Recurring to the topic of the ultimate hidden meaning of the universe, the question seems worth suggesting whether it is the ascending path for Æsthetic to come to depend more and more on the sense that each of the dual items implies and represents this one hidden meaning, and has *that* great bond of sameness with the other. Rudimentary æsthetic depends on mere sense-sameness. As æsthetic attains greater development the link of sameness in difference can be, not merely sensation, but also meaning ; a relevance deeper than bare sense. And among all meanings the supreme is the meaning of the universe : why it is what it is. If then æsthetic came to rest more and more on that one supreme link of sameness, the great unity of meaning which we conceive to subsist in all phenomena, it would perhaps thereby rise to its highest. To give an illustration : one of the proverbial triplets attributed to the ancient Welsh poet Llywarch Hen runs thus—as translated in Skene's edition :—

Rain without, near is the shelter,
The furze yellow ; the cow-parsnip withered and dry ;
God the Creator ! Why hast thou made a coward ?

These lines have a certain mystic effectiveness even taken alone : and to say so is equivalent to saying that we believe that there is a common hidden relevance in the apparently irrelevant statements. And the only relevance one can conceive is that the two sets of phenomena, the visible surroundings and the existence of cowards, though so different, are the same in that they alike imply as their necessary condition the sum total of all things. Its scope and meaning, hidden in each, is in some way specially well expressed by the concurrence of the two. Now here, I confess, the "beauty" is to me totally apart from immediate

perception, and is entirely matter of belief; because I am willing to infer that it is there. But I would suggest that the best future of æsthetic may lie in a gradual transference of the grounds of such beauty from the region of inference to that of immediate perception. In the case of music some such transference has occurred. Modern harmonies sound beautiful only in virtue of our, by this time instinctive, acceptance of the scale as the basis of our music; a basis partly conventional. And if it be asked what is to be our protection against accepting extravagances and absurdities in art at the bidding of the artist, it may be suggested that there are phenomena which taken together do in very truth represent the one ultimate meaning better than other phenomena would do; that the highest artistic faculty consists in the power of recognising these phenomena; and that the human race have so far the power of recognising the same phenomena instinctively, that the artists who select them are sooner or later felt to be supreme.

I have been speaking of the beauty of "meaning". Previously I described such beauty as arising when quality holds its own in an "antagonistic medium". It is interesting to examine these very different phrases side by side.

Let us inquire a little further into the "antagonism"; our previous instances of it were the adverse medium of stone in which the quality of humanness holds its own, and the adverse medium of five-syllabled-ness in which nine-syllabled-ness was still present. Does a similar antagonism occur in every instance of beauty, whether expressive or merely formal?

Yes; and there is no difficulty in seeing that it is so. In a beautiful geometrical figure there are, for each line that stands correctly drawn, an infinite number of incorrect directions that it might have taken. In spite of infinite possibilities of error swarming round it, the line takes the one infinitesimal right course. Here, too, we have Gautier's "*forme rebelle*," out of which the beautiful figure forces its way, in the immense number of difficult conditions to be fulfilled; for it is necessary that every one of the infinitely numerous parts of every line should be in its one correct position, and not in any of the infinitely numerous incorrect adjacent positions.

Turn now to the beauty of expression. In it we have factors that offer more or less or perhaps very little actual sameness in difference, and an indefinite degree of potential or implied or believed-in sameness in difference. Now here, too, we have a fulfilment of conditions; the items are (we

see or believe) just what they needed to be. But the difficulty of fulfilling the conditions is no longer the same as in the case of the geometrical figure. In that case it was difficult, but not impossible, for the conditions to be fulfilled. In the region of expressive beauty we have difficulties ranging up through an ascending scale and often reaching *impossibility*, as to the fulfilment of the conditions. The poet gives me five-syllabled-ness to balance nine-syllabled-ness; they match; they are the same, that is, some hidden quality fulfils the *impossible* condition of being nine and yet five. And this fulfilling of adverse or even impossible conditions is possible if the items may take refuge in what they imply; if potential or inferred sameness in difference, as well as what is actual, may count as making for beauty. To recur to a former instance, it seems impossible that bereavement and the breaking of waves should do mutual duty like the two symmetrical sides of a Gothic arch; you might as well prop one half of the arch against a tree and call that beautiful. But let bereavement and the breaking of waves each imply the All that each does imply, and there is common ground between them. One great quality, one ultimate meaning, persists in spite of the (to us) inscrutable antagonism, from one to the other.

But, once more, *why* is beauty of these highest kinds acceptable? May we say that we believe that an inconceivably great extension of our faculties would enable us actually to *perceive* that the breaking of waves and bereavement are perfectly symmetrical phenomena, presenting a "beautiful" sameness in difference; and that just as *actual* sameness in difference is acceptable because Ego is yielded thence with a minimum of thwarting, so *potential* sameness in difference is acceptable because there is the utmost yield thence of potential unthwarted Ego?

The problem of acceptableness of beauty may be dealt with by psychology as forming part of the general subject of pleasure-pain. Some interesting lines of thought seem suggested if we apply to the case of æsthetic pleasure Mr. Stout's formula that pleasure accompanies a re-establishment of disturbed equilibrium (*Analytic Psychology*, vol. i.). Take a simple type of symmetrical beauty, *e.g.*, a geometrical figure. In æsthetic pleasurableness of this kind, where is there a re-establishment of disturbed equilibrium, or where, again, in a more complex case such as the æsthetic effect of Archimedes' theorem?

In answer, let us remember what seemed to be the essence of æsthetic effect, *viz.*, quality holding its own in face of

"difficulty" or contradiction. Now quality of this kind requires, in order that it may be perceived, at least two items, each of which exemplifies it, and each of which is concurrently present. A geometrical design would not bring home to us the sameness that persists from one half of it to the other unless both halves were before us. If you cut away a geometrical pattern till there were no two similar portions left, you would leave no trace of æsthetic effect. A single dog will, it is true, recall the familiar quality of caninity without the presence of a second dog; but such a quality does not, to our accustomed eyes, seem to have to overcome any "opposition" each time it reappears. But when, as with all æsthetic quality, such opposition has to be overcome, at least two items must be present. And when they are present, it seems that there does indeed occur what may well be described as a continuous re-establishment of disturbed equilibrium. There may be said to be an enforced hovering of the attention backwards and forwards from one item to the other; neither alone will make manifest the rare and precarious quality that is felt to be before us; each item seems to tilt the attention over to the other.

And the same may be said in the case of such beauty as that of the five-syllabled line or the theorem. Take the latter instance. Here, too, there is a highly precarious quality before us, the quality of (apparent) incommensurability which is nevertheless commensurability. To constitute this unique quality we emphatically must have both of its representative items present; and they are in the given instance both present, coinciding. And the two irreconcilables, meeting in a unity, seem to keep the consciousness gently rocking backwards and forwards; to dwell on either by itself disturbs equilibrium; the complex oneness of the two, to be realised, requires a constant transition of consciousness from one to the other.

These rather desultory remarks, which I here bring to a close, pretend to no sort of completeness; I do not even claim that all my suggestions are mutually consistent. They are suggestions and no more.

V.—FIXITY OF CHARACTER: ITS ETHICAL INTERPRETATION.

By J. D. LOGAN.

IN this day of destructive philosophical criticism one fails to wonder at the ever-increasing metamorphoses of the 'central problem' of Ethics. Indeed we are still seeking the central problem itself. Now we are told that the problem of Freedom, for instance, has disappeared, and "exists only for a theological or scholastic philosophy". And now it is asserted that "after all Free-will is not the highest Freedom". And now another holds that there may be Freedom (of Self-initiative) "whether there be any choice between alternatives or not"; and that Responsibility is successfully gaining recognition as the central problem of Ethics. Finally, the Absolutist submits that Freedom, if it means anything, must imply that I, *at any time* in my life, character and environment notwithstanding, can choose the "law of death" equally with the "law of life": or that, on the other hand, if Freedom does not imply this, it must be at best a disguised Determinism.

Just here—in the position of one who is a Freedomist, but not of the Absolutist type—appears the paradox, dressing, as it is said, Determinism in the garb of Freedom. Fixity of character, continuity of life, we are told, *mean* this. And can we escape Prof. James Seth's conclusion? "The moral crises of our lives are few," he says, "and soon over; but it seems as if all the strength of our spirit gathered itself up for such supreme efforts, and as if what follows in the long-drawn years were but *their* consequence."¹ Here is a hint of universal causation: character moves along lines fixed by a single act, a single choice: the 'crisis' *means* this. But, on the other hand, we are accustomed to think that an "evil character, however evil, being the formation of

¹ Jas. Seth, *A Study of Ethical Principles*, p. 54.

Will, might be *unformed* and *reformed* by the same power";¹ and that character is but a "garment in which the spirit clothes itself, a garment which clings tightly to it, but which it need not wear eternally".²

Well, just there is the situation, dilemmatic enough, in our feeling that the reality and the deeper meaning of moral experience demand, on the side of goodness at any rate, Fixity of Character. On the side of goodness we vehemently insist upon our ethical paradox of Freedom passing away into Spontaneity. Responsibility gains its full meaning, and Moral Progress seems guaranteed, if only Freedom and Duty, Fixity and Spontaneity, are their correlates and conditions. "The condition and attribute of the highest life, we readily admit, is not to hold oneself aloof from good and evil, and 'free' to choose between them." And the Human Spirit feels nothing more or less than outraged by the Nature of Things of which it is an integral part, if its progress in the good life does not mean its "perfect and established union with the higher and the good". And yet all this seems but the creation of our own prejudices: as if we had some *interest* in proving that the saint is not or cannot be potentially the sinner. For while we conceive the possibility of the final redemption of a man "however evil," we cannot, on the other hand, conceive—or, at least, we refuse to conceive—the possibility of a saint's choosing through a free act of Will the "law of death". That is to say, "holiness" means the negation of the possibility of (a return to) evil, whereas the progress in evil may not mean—so we think!—the absolute negation of the possibility of a future good life. In the evil life the character *is* but a garment which the spirit need not wear eternally. But can we conceive the "good man"—Plato's and Aristotle's "good man"—as forsaking the higher life for the life of sin? There is for the evil man, we hold, the possibility of a change from death to life. But how can it be possible—our spirits absolutely refuse to think its possibility; the Universe, the Eternal Reality cannot see its own put to confusion!—well, how can it be possible for him who communes with God to change that life for death, "dark death"?

I have seen higher, holier things than these,
And therefore must to these refuse my heart.³

Can it be, then, that the Universe is, after all, relentless, merciless, unjust to its own? or is our attitude here nothing more than mere prejudice? I do most sincerely doubt it.

¹ *Op. cit.*, p. 57.

² *Ibid.*, *in loco*.

³ A. H. Clough, τὸ καλόν.

Responsibility and Moral Progress gain a deeper meaning, if only Fixity or Spontaneity, Freedom and Duty be their correlates and conditions. And I doubt that absolute Fixity of Character, as regards *either* good or evil, "is disproved by that indubitable fact of moral experience which Plato, equally with the Christian theologian, calls 'conversion'".¹ Nay, rather, as I think, "Conversion," whether Platonic or Christian, implies, when real, the impossibility of its own negation,—of a "relapse" into barrenness and death.

But there, now, is the Absolutist maintaining your Freedom to be but a disguised Determinism; Character, as it is said, having destroyed the "power of free and incalculable initiation in the Self". Our answer was at least hinted above, in submitting that while Freedom does still remain, Fixity itself gives a deeper meaning to Responsibility and Moral Progress. The difficulty is of the Absolutist's own making, in misconceiving the nature of both Freedom and Fixity,—in supposing this power of free and incalculable initiation in the Self to mean or imply at any time, even when growth in character is granted, the possibility of *antithesis* and *revolt* as well as of *synthesis* and *continuity*, in the matter of the relation of the new to the old, of Nature to Character; and consequently, in supposing, on the other hand, Fixity—conceived as Finality—to be the disproof of Freedom, *i.e.*, of Freedom as the Power of choosing alternatives, when, for that matter, as we shall hold, such an element in Freedom is really non-essential. We may contend that there is Fixity of Character only as regards *either* good or bad; but that there can never be such a thing as Finality of Character,—as regards *growth* in virtue or vice. I may go from bad to worse, from good to better; I may not always go from bad to good, and from good to bad. Infinite possibilities in the direction of either good or evil, not infinite fluctuations,—such infinite possibility means just the power of free and incalculable self-initiation!

The fundamental error of the Freedomists consists, as I think, in their insisting too much upon the necessity of the possibility of choice of alternatives as the essential element and condition of Freedom. We do better to insist that though the possibility of choice of alternatives admits an incalculable element, an element of contingency is yet non-essential; while, on the other hand, Freedom of Initiation, as meaning an act of inner constitution and implying simply

¹ Jas. Seth, *op. cit.*, p. 57.

non-compulsion *ab extra* is fundamental and essential. Nay, non-compulsion *ab extra*, as the prius, is, therefore, the condition of the possibility of contingency; and so far the power of free and incalculable self-initiation must define itself, not in the direction of contingency, but in that of non-compulsion *ab extra*. The possibility of choice of alternatives may or may not be an element in Freedom. But the essential or necessary element is simply the full consciousness of possibility,—of ideal future or end, whether that be contrasted *dynamically* with another end or not.

Freedom lies in that situation precisely, whereas it is said, "man is not, like the animal, merely 'aware' of tendencies that sway him: he 'knows' them and whither they lead".¹ The significance of this knowledge of the *meaning* of one's impulsive tendencies, etc., lies in its making the impulsive tendencies one's *own* motive, and in thus differentiating the *kind* of motivation of the Will. The question of Freedom, then, narrows itself down to the question of the *kinds* of motivation, to the possibility of motivation of the Will *ab intra*. The determination of the Will being admitted, the question is as to the source and kind of determination possible. Now reflex and ideo-motor action exhibit mechanical causation from beginning of process to its end. Unless, therefore, the causal chain be broken, so as to give the Self opportunity to read aright the 'situation,' to 'know' one's tendencies and whither they lead,—unless, that is, an appreciable or properly Self-conscious element becomes part of the process—the causal chain must remain mechanical throughout: the motivation remaining external and efficient simply, the case for Freedom must be given up.

But now, as a matter of psychological fact,² the process of volition exhibits three stages: periods of inhibition, of deliberation, and of decision or motivation. The mechanically causal chain, in all the higher intellectual activities, is broken just at the point of inhibition; and this moment of inhibition offers opportunity for reflexion and the conception of the meaning of the situation, the conception of an ideal future or end, as having an appreciable quality or value, and which may become one's own. And just here the inclination, propension, or what not, that would immediately seek its own end instinctively or by pure impulsion, loses its character of mere inclination or impulsion, is referred con-

¹ J. Seth, *op. cit.*, p. 49.

² See James's *Principles of Psychology*, vol. ii., cap. 26; Höffding's *Outlines of Psychology*, cap. vii., English trans.; Hyslop, *Phil. Review*, vol. i., 4, July, 1892.

sciously to the future, and becomes now the *idea* of some end or future good. And the causal nexus between stimulus and volition having been thus broken by inhibition and again qualified or modified by the conception or idea of an end or future good, "the motive to action must come from the ideational centre, and may or may not conform with the original inclination. It must be observed, however, that this motive is not contributed by the external impression or the sensation, although they are instrumental in its occurrence, but is an *original* and *creative product* of the *ideational centre*, so far as its *form* and *matter* are concerned. This motive is an efficient cause precisely as any motive may be supposed to be, . . . but its efficient power does not appear until it first occurs as a final cause. . . . The end is a pure contribution of the ideational centre, and as the efficiency of this end as a motive awaits ideational activity to decide what shall be the final cause or *ratio agendi*, the cause of the volition comes wholly from within."¹ *Ideas of ends* being, then, so far as their own form and matter go, products of the ideational centre or Reflective Self, these ideational motives, as being, for that matter, both final and efficient causes, differ in *kind* and *source* from external causation. They are the products of Reason, and not of external stimulus: they are idealistic and teleological, and are, therefore, absolutely different in nature from the mechanical causation of external motives, and of reflex and ideo-motor action. And hence the question of Freedom is not a question as to the existence or non-existence of a nexus between motive and volition, but altogether as to the kind and source of the motivation. Just "to sustain a representation, to think, is, in short, the only moral act".² To sustain a representation is enough to guarantee non-compulsion *ab extra*, *spiritual* motivation. Freedom of the Will really and fundamentally consists in sustaining a representation,—in the spiritual- or self-initiation of a process, whether there be choice of alternatives or not. And "if at any time we are able to choose otherwise than we do, the fact *proves* our Freedom, but it is not the *condition* of it. But it is the condition of our Responsibility."³

Let the present Form of the Will be, therefore, what it may, the product of experience, of heredity, or, possibly, a new creation,—and though the Form of the Will determines its Motive, and the Motive, in turn, the Will, and the agent thus seems to have no choice, nay, though man himself is

¹ J. Hyslop, *op. cit. sup.*, p. 385. ² James, *op. cit. sup.*, ii., p. 566.

³ Hyslop, *op. cit. sup.*, p. 388.

within a world of physical causation, yet the whole volitional and moral process, as regards its form and matter, is an essentially *spiritual* process, is still *within* the *spiritual* or *free* circle of his own being. That very present Form of the Will itself may, therefore, change or develop in the appreciable or significant presence of a consciously conceived Ideal. It is precisely this free conception of an Ideal or conscious reference of an end to the Self, as its own possibility or future Selfhood, that leaves the Self with the free and incalculable power of Self-initiation; and this is Freedom in the only sane and significant sense. For this power or privilege of Self-initiation, as implying the inhibition of the mechanical process, means or leaves room for a 'new beginning,' idealistic and teleological in its reference. Without the possibility of this idealistic and teleological reference our Life would be as Nature's, under the negative and external bondage of constraint, or "according to law": but with this possibility man's proper and characteristic Life is a "life 'according to the representation of law,' or in free obedience to a consciously conceived Ideal".¹

Freedom now, in its proper significance, turns out to be an essential or inseparable aspect or function of Selfhood. The ethical interpretation of Freedom and of Fixity, as distinguished from Finality, of Character is now seen to be an interpretation of Character as properly a Form of Will, and of Freedom as being necessarily involved in the Nature of Selfhood, in its Constitution or Self-initiative Function, or Personality. Our ethical ultimates are thus the Self and the Form of the Will to Live: they guarantee both Freedom and Fixity or inevitableness of Character. Altogether, therefore, we must interpret Effort and Spontaneity, Nature and Character with reference to the Self or the Will to Live: if, that is, we are to have a solution of the problem as to whether the relation of the new to the old may always be a relation of antithesis and revolt as well as of synthesis and continuity: and whether the psychological impossibility of the former can in any significant sense be said to be really a loss of Freedom.

Animals and things have merely a *first* "nature," a definite fixed actuality, just because that nature has been *finally* determined for them *ab extra*. Any living organism that may have a *second* "nature" must originally be an indeterminate manifold of potentialities (*δυνάμεις τῶν ἐναντιῶν*). There arises, therefore, the possibility of this second

¹ J. Seth, *op. cit. sup.*, p. 349.

nature, provided the indeterminate manifold may be evolved *ab intra*. The energising principle, the principle initiating the process, must make for "somewhat". It is for the initiating principle to say that the potentiality shall become this or that. But potentiality is not characterised by pure indifference: it has a certain individuality or character of its own. It is the function of the active principle to make potentiality *either this or that*, but of the latter to say *in what way* it shall be this or that. This, I take it, is merely a restatement of the Aristotelian distinction between Persons and Things.¹

Our conception of the Moral Person involves, therefore, the existence in unity of the Self as Attuent² (potentiality) and of the Self as Rational (initiating principle). And the function of Personality, in its moral reference, is nicely expressed for us in Prof. Laurie's formula, as the "realisation of Self (attuent) by Self (rational)".³ This formula presents to us a conception of the *living* Personality. Aristotle had said that "virtue comes neither by nature (*φύσει*) nor against nature (*πᾶρα φύσιν*),"⁴ meaning thereby that virtue or character is an active construction by Will from materials indifferent to virtue or vice generally. Now while the attuent Self is one thing, and the active Self another, the "living" Personality is the *act* of functioning at the heart of morality,—the active *construction* of Character from the plastic potentiality. Personality is not to be conceived as a principle or an entity, but as essentially an act,—of conscious, deliberate, active identification of Self with good or evil. But this is no mere act. It is fundamentally *constitutive*. I am a "proper" Person when out of a given potentiality, inner and outer, Will creates a "character formed after the pattern of the heavenly beauty". And this is the problem of Will: which, however, would remain for ever a mere problem, were not this constitutive act at the same time *dynamic*. The whole significance of Life, Freedom, Responsibility, Individuality and Selfhood is bound up in my performing my proper function or lot,—in the quality of the Will to Live. I will to be this or that, *i.e.*, I consciously conceive this or that as my Ideal, and Personality becomes at once constitutive, dynamic, inevitable,—

I am named and known by that moment's feat.⁵

¹ Aristotle, *Eth. Nic.*, bk. ii.

² S. S. Laurie. *Ethica or the Ethics of Reason*, cap. iv., p. 20 *passim*.

³ Laurie, *op. cit.*, p. 19.

⁴ *Ethic. Nic.*, *in loco cit. sup.*

⁵ R. Browning, "By the Fireside".

Now in the process of any potentiality to its actuality there is at all stages of its progress a constant positive reference to the principle that initiated the process. There must be no violent separation of possibility and actuality, just because the latter is but the definite and complete expression of the potentiality *and* the energising principle *together* working towards their final end. But, again, from the fact that man's first nature is but a "potentiality of opposites," and that Personality is constitutive and dynamic, there arises for man the possibility of a second or higher nature, a definite fixed actuality, as regards *either* good or bad, evolved by a process of Choices or Self-initiations,—and even by a single choice. There's the significance of Responsibility! The question is, therefore, not as Janet has it paradoxically, "Are we free to be free?"—but, "Are we fundamentally and distinctively Persons that function, as in Self-initiation, towards the creation of a fixed definite actuality, and fixed merely as regards the direction or general Form of Will?"

Now in the moral life this definite fixed actuality which we have named Character, is to be conceived merely as a Form of Will, and as in itself, again, dynamic, inevitable, spontaneous. In this "spontaneity" of the moral life Freedom of initiation is always implied, but at this stage the accent must be properly on the spontaneity, as being *now* the new *Form* of the ideational centre or initiating principle. The Character or Form of the Will is, however, always less than the Self which *has* the character. But it is just because the Self is always more than any empirical Form of the Will, nay, just because the Form of the Will itself is what it is, that true moral progress is assured and that I may not always, therefore, become something to-day irrespective of what I was yesterday, become, *i.e.*, now good, and now evil. It is just because, on the one hand, the self is more than its character, and because, on the other hand, the present Form of the Will, as it were, "informs" the mind of the Self, that the Self *can* "transcend and judge his own character, that genuine moral Freedom and moral Responsibility become possible and actual".¹ The fact of Personality, and with it Freedom, as we understand them, are thus most clearly exhibited in Fixity of Character, since this implies an act of "Constitution,"—of conscious and complete self-surrender to good or evil. This active identification has created a second or higher nature, has placed the moral life under a

¹ Prof. Upton; quoted by Prof. Seth, *op. cit.*, p. 381, from *New World*, i., 152.

higher category. But the 'naturalness' of the higher life is in nowise to be construed in terms of "determinism". For, so I like to put it, spontaneity, as, in a sense, "informing" the mind of the Self as to the inadequacy of its present character, and certainly, again, defining the direction of possibility, is, in virtue of such functions, as it were, the "regulative" aspect of Personality; while Freedom, on the other hand, is its "constitutive" aspect. But these, it must be, are but two and *inseparable* aspects of the Moral Person, or the Will to Live. And now Freedom is proper, it shall be, to the nature of Personality: is the prerogative or birth-right of the Moral Person!

We shall therefore interpret Fixity of Character, Spontaneity of moral life, as but the absolute negation of the original "potentiality of opposites". And, again, just because this second or higher nature, the latest Form of the Will to Live, has become precisely what it is by a definite process, we cannot interpret it in terms of determinism. For the fact that self-initiations or choices "crystallise" and give "fixity" to character, in no way exemplifies a *loss* of Will power; but rather the Will's full possession of pure and definite quality, as being now really a *Will*. Is it not, at least, a significant fact that "the strongest and deepest natures are the saints and the sinners"?¹ And surely that which works "without a conscience or an aim" is much less a Will than that which manifests strength and fixed purpose! There were infinite possibilities of either good or bad; there cannot always be the possibility of infinite fluctuations without Moral Freedom and Moral Responsibility losing their meaning. Towards Fixity of Character, or spontaneity of moral life, as we now understand them, the energy of the Self has been working. Its Self-initiation *means* this at last. And if it did not mean this, not even proper Self-initiation—there's the significance of Fixity, Spontaneity, as "in forming" the mind of the Self with reference to Ideals and significant Values, as, in short, the "regulative" aspect of Personality in defining the direction of possibility!—not even proper Self-initiation could be guaranteed; or, at least, the Self-initiation would be altogether superfluous, nay, even frustrating so far as moral *progress* is concerned, just because it *guarantees* nothing. But that Self-initiation should guarantee a newer Form of Will, and this in turn guarantee proper Self-initiation,—this seems to me to give Responsibility a lurid meaning. And

¹ J. Seth, *op. cit. sup.*, p. 56.

even if we have some interest in proving the saint not to be potentially the sinner, such prejudice has a sufficient *raison d'être*, when it is seen to be but the expression of the deeper nature of the moral needs of mankind,—to have, as I think, high psychological and ethical warrant.

We have been slow, perhaps, to see that Self-initiation or choice perpetuates itself: that the Form of the Will is ever the Child of Freedom, and perpetually owns its parentage; and that the moral movement, with its presuppositions, the constitutive and regulative aspects of Personality, the Self and the Will to Live,—the entire moral process is, as such, an essentially spiritual process, is *within* the free or *spiritual* circle of one's own being. Well, there's the point of the whole argument: If we conceive Personality as the "synthetic activity" at the heart of morality, with its two and inseparable aspects, constitutive and regulative, then *Freedom, as belonging to its constitutive aspect, still remains; the Form of the Will to Live, as regulative, has simply made its possibility its own.*

What we should contend for, then, is not a Freedom that is "for ever" choosing between good and evil; not even "Freedom on the whole"; but rather for Freedom—as an aspect of Personality—to initiate a set of correspondences, to actively identify oneself with and develop a certain definite line of conduct, to live "according to the representation of law" or in free obedience to a consciously conceived Ideal".

Either, therefore, we must hold that both saint and sinner are free at any moment to choose the "law of death" equally with the "law of life," no matter how developed in either direction their respective characters may be; or that choices "crystallise" and character takes, as it were, the finality or fixity of a creation. But we have repudiated the Absolutist's Freedom as being *prima facie* superfluous and unmeaningful. Shall we not, then, hold that there are "moral crises" in our lives when our spirits make or must make supreme efforts, and that what follows ever after *is* their consequence? A lurid meaning for Responsibility surely! "Every act is *implicitly* a case of such moral faithfulness or unfaithfulness."¹ And herein lies the tragedy of life: that by active identification of Self with evil, men may and do sell beyond redemption their "high human birth-right".

¹ J. Seth, *op. cit. sup.*, p. 54.

VI.—DISCUSSIONS.

ARISTOTLE'S EXPLANATION OF ΑΚΡΑΣΙΑ.

THE interpretation which Mr. W. H. Fairbrother, in his interesting article on "Aristotle's Theory of Incontinence" in the July number of *MIND* (see especially pp. 364-7), has put upon *Eth. Nic.*, vii., c. 3, is very ingenious; but it seems to me unnecessarily to strain the meaning of the passage by separating §§ 5-8 (1146 *b* 31-1147 *a* 24) from the remainder of the chapter (§§ 9-14, 1147 *a* 24-*b* 19). Mr. Fairbrother supposes §§ 5-8 to deal with "three ways of 'sinning against knowledge' in a sense (*πως*) which do not amount to Incontinence, though they look like it at first sight and are readily confused with it". Now I cannot find anything in the Greek to warrant this interpretation. Aristotle says nothing here about a "pseudo-incontinence". The word *πως* only occurs in §§ 5-8 as a qualification of *ἔχειν ἐπιστήμην* (§ 7, 1147 *a* 13): in § 10 (1147 *b* 1), which moreover Mr. Fairbrother takes to be part of Aristotle's account of his own theory of real ἀκρασία, the word *πως* qualifies *ὑπὸ λόγου καὶ δόξης* and not ἀκρατεῖσθαι. The obvious interpretation of the whole passage (§§ 5-11, 1146 *b* 31-1147 *b* 5) is to consider it (as Mr. Stewart, for instance, does in his commentary) as consisting of four explanations of the possibility of ἀκρασία—the last three are all introduced by the word *ἔτι*—all of them put forward by the writer himself as his own explanations of the same phenomenon and not supposed by him to be incompatible with one another. It is quite true that Aristotle often puts forward dialectically a series of proofs or refutations to which he does not commit himself, or not in equal degrees. But in the present case all the various explanations seem necessary to a complete theory of ἀκρασία: and it is noticeable that, in the summary or repetition of the argument in § 13, more obvious use is made of §§ 5-8 than of §§ 9-11, which alone Mr. Fairbrother holds to contain Aristotle's own theory.

Further I think it can be shown that the interpretation which finds Aristotle's theory in a combination of the four explanations (§§ 5-11) is (in spite of the objections of Mr. Cook Wilson and the doubts of Mr. Stewart) quite consistent with everything that is said elsewhere in the *Ethics* about responsibility and about the relation between knowledge and conduct. Aristotle, or a pupil

reproducing his views, or his editors working up his notes, or his pupils' notes—it does not matter for our present purpose which view be taken, or whether the question can be settled or not—Aristotle, as we may for convenience at least call the writer, who in any case is giving or developing Aristotelian doctrine, sees a difficulty in accepting the Socratic paradox that it is impossible to know what is right and yet do what is wrong. Nevertheless he sees that there is an important element of truth in it: this is finally admitted in 3, § 14: καὶ ἔοικεν ὁ ἐξήτει Σωκράτης συμβαίνειν κ.τ.λ. It is certainly an exaggeration to say, as Mr. Fairbrother does (p. 363), that "Aristotle sets himself to destroy the Socratic heresy". The partial agreement with Socrates at which Aristotle here arrives corresponds exactly with the partial agreement respecting the general relation between knowledge and conduct expressed in *Eth. Nic.*, vi., 13, § 3, 1144 b 18: καὶ Σωκράτης τῇ μὲν ὀρθῶς ἐξήτει, τῇ δ' ἡμάρτανεν· ὅτι μὲν γὰρ φρονήσεις ᾤετο εἶναι πάσας τὰς ἀρετάς, ἡμάρτανεν, ὅτι δ' οὐκ ἄνεν φρονήσεως, καλῶς ἔλεγεν. Indeed Aristotle sets out on his discussion of the difficulties about ἀκρασία with the hope of being able to accept in some sense all the principal current opinions on the subject (vii., 1, § 5, 1145 b 4, 5). He finds, however, that he cannot accept as sufficient the Platonic solution of the difficulty—the theory, viz. (vii., 2, § 3, 1145 b 31), that it is possible to act contrary to true opinion (δόξα) though not contrary to real knowledge (ἐπιστήμη). The difference between opinion and knowledge in the strict sense is, indeed, a genuine difference; but it is a difference in the content and grounds of belief and not in the conviction with which a person holds a belief. Some people—like Heraclitus, for instance (Prof. W. James would say "like Hegel")—hold the most fantastic theories—mere "opinions" of theirs, mere "dogmas"—with as much firmness of conviction as if they rested upon scientific proof (c 3, § 4).

Thus, finding the Platonic solution insufficient, Aristotle proceeds to face the problem himself. In the *first* place, the distinction between potential and actual knowing (a distinction already made by Plato in the *Theaetetus*) helps us so far to understand how ἀκρασία is possible. A person can act against his knowledge of what he ought to do, if that knowledge be not at the time vividly present in his consciousness. He cannot act contrary to knowledge vividly present. *Secondly*, when we speak of "knowing," we are dealing with something complex, and we must (1) distinguish knowledge of the universal (the major premise of a practical syllogism) from knowledge of the particular (i.e., the *singular* proposition which forms the minor premise of a practical syllogism), and (2) we must note that each of these premises is twofold, having a subjective and an objective reference.¹ Thus as an example of a practical major premise we may

¹ The complex nature of both premises (and therefore necessarily) of the conclusion of the practical syllogism is very clearly put in *De Anima*, iii., 11, 434 a 16, seq., where the major premise is given as ὅτι δεῖ τὸν

take a medical "maxim" such as "A dry diet is good for all". This maxim is capable of analysis into two propositions:—

- "(1) All men are benefited (2) All dry food is good for
by dry food; men".

But if a practical application of this maxim is to be made, *i.e.*, a recognition that some particular act (a "this") is to be done by some particular person (an "I"), there must be two minor premises:—

- "(1) I am a man; (2) This is dry food".

If either of these should be forgotten or left out of sight, the conclusion "I am benefited by *this*" will not be drawn. Only when this conclusion is in the mind *and* actively present in consciousness (*ἐνεργεῖ*) will conduct be affected. If, therefore, either of the minor premises is not in the mind or not actively present in consciousness (*ἀλλ' εἰ τὸδε τοῖόνδε, ἣ οὐκ ἔχει ἣ οὐκ ἐνέργει*), the practical conclusion fails to be drawn. Aristotle does not mean to regard this leaving out of sight of a particular as an "innocent mistake in application" (as Mr. Fairbrother supposes, p. 365). Ignorance of the particular excuses (iii., 1, § 15, 1110 *b* 30), but not carelessness about the particular or neglect of it. It is a pity that Mr. Stewart has illustrated vii., 3, § 6 by a case of ignorance (that sherry contains acid) and not by a case of the non-application of knowledge. Of course either ignorance of the minor premise or forgetfulness of it will prevent the conclusion being drawn; but it is the forgetfulness which is relevant to the explanation of *ἀκρασία*. In the practical syllogism of *Eth.*, vi., 7, § 7 (1141 *b* 18), ignorance of the minor premise is to the point: in vii., 3, § 6, ignoring or not applying the minor is the explanation of *ἀκρασία*. If genuine ignorance could be proved, the person would not be blamed. The *ἀκρατής* is not the person who does not *know* that too much alcohol intoxicates, but the person who does not attend to the fact that he is drinking too much. The practical syllogism, it may here be noted, is clearly to be understood in the light of what is said in *Eth. Nic.*, vi., 2, § 2, 1139 *a* 21: *ἔστι δ' ὅπερ ἐν διανοίᾳ κατάφασις καὶ ἀπόφασις, τοῦτ' ἐν ὁρέξει δῶξις καὶ φνυγή*. Pursuit of this, avoidance of that are treated for convenience of analysis as equivalent to the propositions "This is good," "That is bad". Aristotle must not be understood to hold the absurd view that there is no syllogism unless the premises are clearly formulated in words. *Συλλογισμός* means simply "inference," "conclusion". Thus, wherever a principle (*ἀρχή* = major premise) can be found in a particular action, wherever at least actions are due to *conceptions* of ends (*cf. De An.*, iii., 11, 434 *a* 5, *seq.*), the action admits of analysis as a syllogism with a universal major and a singular minor, or as a series of syllogisms in which the conclusion is always more particular than the major premise.

τοιοῦτον τὸ τοῖόνδε πράττειν, and the minor as *οὔτι τὸδε τὸ νῦν τοῖόνδε, κἀγω δὲ τοιόσδε*.

In the *third* place, when we speak of "having knowledge," we must distinguish between the mere presence of a proposition in consciousness and actual living grasp of a truth. In a state of drunkenness or of imperfect understanding of any kind¹ a man may have in his mind the words that express a practical rule for him; but they may be mere words to him and not part of his real self (δὲ γὰρ συμφύναι, § 8). He may say "Drink is a curse," or even "I have had enough now," while he goes on drinking. We are clearly justified in applying the distinction here drawn between verbal and real assent to both premises, major and minor, universal and singular. In § 13, 1147 *b* 9, Aristotle applies this distinction specially to the minor premise. Thus §§ 7 and 8 seem perfectly in place after § 6, which has introduced the reference to the two kinds of premises: they are no mere duplicate of § 5, but bring in a new distinction—a different kind of distinction between potentiality and actuality from that which is made in § 5. It may indeed be admitted that the whole passage would *seem* neater and more orderly, if §§ 7 and 8 had been placed immediately after § 5, so that the two similar sets of explanations came together. But (even apart from the advantage in having §§ 7, 8 after the distinction of premises in § 6) I do not think it could be inferred that Aristotle would have placed them so. If the canons of orderly exposition, which some scholars apply to the Aristotelian writings, were applied to Kant's *Critiques*, these would require to be largely rewritten and great portions would have to be rejected as spurious.

Lastly, in §§ 9-11 we have the explanation of this inattention or non-realisation of knowledge which in the preceding sections has been shown to be the source of ἀκρασία. In his final argument Aristotle goes more fully into the actual facts—the actual phenomena of mind—which take place in cases of ἀκρασία. This is to investigate the matter φυσικῶς, as distinct from the more abstract arguments which have preceded and which turn upon the general distinctions between potential and actual knowing, between consciousness of a universal rule and consciousness of the fully particularised application of it, between lip-service and real assent. What is now given is a psychological analysis of the mental state of the ἀκρατής, but with the help of the logical analysis of the syllogism. Aristotle has already recognised in *Eth. Nic.*,

¹ In connexion with §§ 7, 8, it is interesting to compare the passage in *Phys.*, 255 *a* 33, to which Prof. J. Burnet has called my attention. There two senses of δύναμις ἐπιστήμων are distinguished: (1) that of ὁ ἔχων ἤδη καὶ μὴ θεωρῶν, (2) that of ὁ μαθάνων. The first of these senses is the potential knowledge of § 5 of this chapter in the *Ethics*. Can we identify the second with the unrealised knowledge of §§ 7, 8? The illustration of οἱ πρῶτον μαθόντες in § 8 would seem to justify this identification. Aristotle may mean that in states of "confused perception" (if we may borrow Leibniz's phrase), like those of swoon, insanity, drunkenness, the mind falls back into the condition of the beginner who has not yet waked up to the meaning of the words he is made to repeat.

vi., 2, § 5 (1139 a 35), that "intellect by itself is not an efficient cause of action". In order that action may follow upon an intellectual conviction there must be *δρεξις* present in the mind. *προαίρεσις* is νοῦς ὀρεκτικός. This is not repeated in vii., 3, but it certainly seems to be taken for granted. Aristotle has got beyond the Platonic antithesis between Reason and Feeling (which Mr. Fairbrother wrongly attributes to him on p. 363). Reason, he sees, is not all on the side of the good; nor feeling all on the side of evil (cf. *Eth. Nic.*, iii., 1, §§ 24, 27, 1111 a 30; b 1, δὲ δὲ καὶ ὀργίζεσθαι ἐπὶ τις καὶ ἐπιθυμῆναι τινῶν . . . αἱ δὲ πράξεις τοῦ ἀνθρώπου ἀπὸ θυμοῦ καὶ ἐπιθυμίας). If reason and feeling were merely separate from one another there could be no harmony between them (cf. *Eth. Nic.*, i., 13, § 18, 1102 b 30, τὸ ἐπιθυμητικὸν καὶ ὁλως ὀρεκτικὸν μετέχει πως λόγον): and he now recognises also that there could be no discord between them, unless they came together (vii., 3, § 10, συμβαίνει ὑπὸ λόγον πῶς καὶ δόξης ἀκρατεῖσθαι). The acts of the ἀκράτης are the working out of a practical syllogism as well as the acts of the ἐγκράτης. The ἀκράτης acts out a maxim which in itself is not opposed to the maxim of the ἐγκράτης. The ἀκόλαστος has bad principles—major premises that are opposed to those of the ἐγκράτης; the ἀκράτης has good principles, but, as already shown, does not carry them out, while he does carry out principles of pleasantness, of gratification of desire, not in themselves opposed to good principles, but *per accidens*—in particular circumstances. There is no logical opposition between the principle "Excess is to be avoided" and the principle "Sweet things are pleasant" (and therefore, it is assumed, to be enjoyed unless there is any reason to the contrary. Aristotle is no ascetic, and is quite ready to admit that pleasure is ἀγαθόν τι, though not the good, *Eth. Nic.*, vii., 13, § 1, 1153 b 4, cf. x., 4, § 10, 1175 a 16, εὐλόγως οὖν καὶ τῆς ἡδονῆς ἐφίενται sc. ἅπαντες). But in a particular case there may come to be a practical conflict, e.g., "This (the third bottle of port, the nineteenth cup of tea, or—to use an example that fits Aristotle's illustration better—the fourth piece of sugar in the tea) is excess for me," is in practical conflict with the minor premise of the syllogism of pleasantness: and the minor premise of the syllogism of self-control may be overlooked and neglected, owing to the attention being concentrated on the minor premise, "This is sweet," through the influence of appetite and desire. To make the use of the practical syllogism in §§ 9-11 fit in perfectly with what was said in § 6, it should have been noted that each of the two syllogisms of §§ 9-11 admits of an analysis into a subjective and an objective aspect such as was given in § 6. The practically opposing conclusions, that is to say, are the complex propositions, "This act (here and now) is excess for me," "This act (here and now) is pleasant for me". All that has been said in the preceding sections is not superseded by §§ 9-11, but is supplemented and completed by them.

Aristotle is thus able to recognise the truth in the Socratic

doctrine, while getting rid of its paradox. Ακράσια is not acting contrary to knowledge in the true sense—the knowledge of universals—of principles. Not the principle but the sense-knowledge of the particular, the minor premise, is what is diverted and thrust aside in ἀκράσια. This seems to be the meaning of § 14, though the expression is cumbrous and the text possibly corrupt. Aristotle's whole argument brings him to the same conclusion as that of Mr. F. H. Bradley in his treatment of the question, "Can a man sin against knowledge?" in *MIND*, vol. ix. (O. S.), p. 290: "It is only where the attention is concentrated upon the quality of the act, and even then it is only where the act in its wrongful quality is present as a vivid imagination, that the conscience will be irresistible. It is not knowledge, it is a relative degree of feeling excited by a certain kind of knowledge, that coerces the appetite. This, I think, will furnish us with a partial justification of our paradox, and it also may serve as its final refutation."

D. G. RITCHIE.

THE EXISTENTIAL IMPORT OF PROPOSITIONS.

In this paper some observations will be offered on the existential import of propositions according to the actual usages of speech (or, as I should prefer to say, according to the laws of speech), without reference to the interests of formal logic.

We might reach the answer to this vexed question by a short cut, if we could assume that the verb *to be* retains an existential import when it is used as the copula; since almost all (if not all) propositions can be expressed in the form, S is P. And it is far from certain that this way is closed to us, notwithstanding that Mill maintains the contrary with a placid confidence that is rather disconcerting to an unconvinced reader. It seems worth while to recall Mill's discussion of this point, were it only for the sake of the curious example it affords of the confusion in which the whole question of existential import is so often involved. He appears¹ to regard the use of one and the same verb both to assert existence and to serve for the copula as purely arbitrary; and he can only excuse Plato and Aristotle for the confusion into which they fell on this subject on the plea of their ignorance of a plurality of languages. Yet in the same paragraph he tells us (very truly) that the "ambiguity" exists "in the modern as well as in the ancient languages"; from which it would seem probable that an extensive knowledge of languages, far from delivering the Greek philosophers from their error, would have greatly confirmed them in it.

Mill even attempts to close the question by giving as an example, A centaur is a fiction of the poets. In so doing, he falls into a curious inconsistency with his own doctrine² that every proposition, not merely verbal, implies the real existence of its subject; since his example is by no means merely verbal, fictitiousness being no part of the connotation of the name *centaur*. The obvious explanation is that the proposition is elliptically expressed, and as it stands is not true. The poetic fiction never created a centaur, but simply created the idea of one; and this is amply realised by intelligent people who use such phrases, and they are ready to insist that in strictness of speech they must say, The idea of a centaur is a fiction of the poets. But as soon as the judgment is thus adequately expressed, the existence of the subject is very plainly implied indeed.

This would not be worth spending time over if it were merely the case that Mill lighted on a bad example; but it is quite another thing, if, as I believe, he could not have found a good one. At any rate, it is well to insist that he has done nothing (or rather, less than nothing) to silence the evidence of the copula.

It is not, however, on that evidence that I should rely in forming an opinion on the general question. For, though it is quite clear to me that it is by no mere accident that we make the verb that

¹ *Logic*, bk. i., c. 4, § 1.

² Bk i., c. 6, § 2.

predicates existence serve as the copula, it does not seem certain that we can advance from this to a full existential implication in the copula (though the question whether we can is worth a careful investigation); and it is therefore a simpler and more satisfactory course to inquire what we can infer as to the existence of the subject from the mere fact of an affirmation as such.

On this point it is pleasant to be able to express a strong opinion that Mill has indicated the true doctrine,¹ and that it is only by a retrograde movement that a settlement of the question is attempted on any other basis.

Mill's doctrine already referred to is that an accidental (*i.e.* real) affirmation implies "the real existence of the subject, because in the case of a non-existent subject there is nothing for the proposition to assert". Of this, Dr. Keynes says² that it is "no doubt the view that, at any rate on a first consideration of the subject, appears to be at once the most reasonable and the most simple". Some of us are constrained to go much further, and to say that it appears to be a plain and necessary truth.

No doubt it requires to be guarded. "Real" existence must be understood in reference to whatever universe of discourse is in question. Mill overlooked this, and committed himself to the very questionable statement that "such a proposition as, The ghost of a murdered person haunts the couch of his murderer, can only have a meaning if understood as implying a belief in ghosts". But surely such a statement might naturally be made by the most thorough disbeliever in ghosts, if his discourse related to the universe of mythology. Take, however, a statement much more likely to occur. If I say, The Olympian gods practised many shameful deeds, the proposition is real and not unmeaning. Mill does not provide for such a case, but at the present time it presents no difficulty, and there is probably no fear of controversy arising with regard to it.

But if Mill's statement is modified in the light of the essential doctrine of varying universes of discourse, I believe that nothing more is required. The statement is then not only true, but within the truth; for it holds good for verbal as well as for real propositions. Mill was compelled to exclude verbal propositions, because definitions could be given of imaginary things. But to us this is no difficulty, and it is surely as impossible to give a definition of the non-existent as it is to make any affirmation about it.

But Mill's doctrine, however simple and cogent, has not commanded universal assent; and Dr. Keynes has recently maintained that many propositions are of a character altogether inconsistent with the doctrine.³ He has adduced several plausible examples; but I believe that it is possible to show that they are only apparent exceptions.

Dr. Keynes' own view is that categorical propositions of what-

¹ *Loc. cit.*

² *Formal Logic* (3rd ed.), § 117.

³ *Op cit.*, pt. ii., c. 7 *passim*, especially §§ 122, 123.

soever class usually imply the existence of the subject; that some universal propositions, both negative and affirmative, are exceptions, but that the rule holds good universally in the case of both particular and singular propositions.

The following selection from Dr. Keynes' list of examples will be found, I believe, sufficiently representative: All candidates arriving five minutes late are fined one shilling; Who steals my purse steals trash; An honest miller has a golden thumb; A planet moving in a hyperbolic orbit can never return to any position it once occupied; No unicorns have ever been seen.

Now most at any rate of these and the other alleged exceptions are hypothetical propositions, some such clause as, If such there be, If any one should, etc., being plainly understood. So clearly is this the case that speakers who affect great precision make a point of expressing a clause of the kind, and the only objection ever made against doing so is that it savours of a pedantic *accuracy*.

Dr. Keynes anticipates this objection, and rules it out on grounds that seem to me altogether unsatisfactory. He says that the point at issue is "whether we ever meet with propositions in ordinary discourse which are categorical in form, and yet are hypothetical so far as the existence of their subjects is concerned"; and he says that "this point must be decided in the affirmative". But surely when we examine for logical purposes the usages of speech, it is material to us to know whether a usage is exact or slovenly, correct or incorrect; or rather, it is understood that we have to do only with correct usages, since otherwise we can have no guarantee that a given proposition is after all the expression of a judgment.

Now it is of vital importance to observe that these propositions as they stand may perfectly well imply the existence of the subject. A Cambridge man, relating various circumstances that had come under his notice at the University, might very well say: Freshmen are treated as inferior creatures; Candidates that arrive late at the examinations are fined; The lowest Junior Optime gets a wooden spoon. Here the existential implication is quite clear. How is it that the same form of words can be also used to express a radically different judgment? Simply because sometimes the connexion in which the words occur implies a hypothetical clause so powerfully that it is waste of time to express it. This means that the judgment is partly expressed, and partly left to be understood. But if ambiguous statements are allowed in the witness-box, I do not see why erroneous statements (*i.e.*, statements expressing a totally different judgment from that intended) should not also be admitted, and then there is no end to the confusion. I contend that Logic, as the Science of Reasoning, has nothing to do with any proposition that is not the sufficient and unequivocal expression of a judgment.

The above is no picked case. Take the negative example: No unicorns have ever been seen. The words might conceivably be

used by one who devoutly believed in all the folk-lore of his people, to illustrate, for example, the shyness of the animal; in which case, of course, there would be the ordinary full existential import. The only other sense in which the words can be used is as an argument for the non-existence of unicorns. The first speaker's intention is to assert a fact about unicorns; the second speaker's to assert that a certain thing is a fact about them, if there are any for it to be a fact about. Are we to treat a hypothetical proposition as categorical, simply because the hypothesis is so plainly implied that it is needless to express it?

As an *argumentum ad hominem* to Dr. Keynes, it may be pointed out that neither particular nor singular propositions are free from anomalous instances of this kind. Dr. Keynes admits this in the case of singulars, as in the proposition, The first man to ascend Mount Everest will be famous; and he makes no difficulty this time about relegating the proposition to its right place—amongst hypotheticals. But particular propositions are no better off. Take, for example, Some candidates arriving late are fined. This does not necessarily imply that any candidate ever arrived late. It may only be a partial statement of a regulation that provides for the fining of any candidate who comes late without an excuse signed by his tutor.

Formal logicians have possibly the right to frame whatever convention they find best suited to their purpose. But if they claim the sanction of usage, and consider it urgent to keep in harmony with the actual forms of speech, they are not at liberty to frame a convention that allows a necessary existential import to particular and singular propositions, and denies it to universal propositions. In all three cases, the (even apparent) exceptions are rare, but they are found in all alike. It is difficult to imagine what consideration would entitle us to neglect them in any, without entitling us to neglect them in all.

One of the examples quoted above from Dr. Keynes does not seem to me to be hypothetical; but, on the other hand, its existential import is sufficiently evident. The fact of my making a statement about all honest millers either implies that there are such persons, or it leaves it an open question. If the latter, the example before us is equivalent to, All honest millers, if it should be found that there are any, have golden thumbs; which is as far as possible from the meaning. It follows that the existence of honest millers is implied, which seems rather odd in a statement that aims at conveying the direct opposite. The explanation is that the existence is implied in irony; and therein lies the whole point of the saying. That there is an irony somewhere is evident. It is obviously not in the affirmation, or else the suggestion would be that the thumbs of millers were made of commoner clay than the thumbs of other men. It must then be in the implication, and, if so, the suggestion will be (on my view of the implication) that there are no honest millers; which is precisely what is intended.

It seems to me, therefore, that the view that every categorical proposition implies the existence of its subject,—a view which appears, as already stated, to be required by the very nature of the case,—is strongly confirmed by an examination of the alleged exceptions; for we have seen that the selected propositions that are categorical in form without implying the existence of the subject, not only admit of easy and natural expression in hypothetical form, but are not true propositions, in the sense of accurately and adequately expressing a judgment, until they have been so expressed.

There is one class of propositions that is *possibly* an exception. I refer to propositions of which the very object is to *deny* the existence of the subject. If these propositions are real exceptions it is of no consequence, since our rule will not seem less simple and satisfactory when stated with the requisite qualification, as follows: Every categorical proposition implies the existence of its subject, unless it *explicitly* denies it.

But however little objection there is to admitting an exception in such a sense, it is far from certain that we ought to do so. If I say, The Olympian gods have no existence, I cannot mean to deny an existence that I have implied a score of times before in various statements about them. I must be speaking of a totally different order of existence, *viz.*, existence in the universe of actual things; and this seems all that is intended to be denied. There will then be no ground for questioning that there is in such propositions an existential implication in reference to the appropriate universe.

Confirmation of the view maintained in this paper is furnished by the simple consideration that any proposition that does not imply the existence of its subject must needs *suppose* it. The *hypothetical* nature of the proposition is then not far to seek.

A further confirmation may be obtained by a glance at propositions that present themselves in a hypothetical form. If we express in categorical form as many of these as we can, we shall find that whenever the resulting proposition does not imply the existence of its subject, it does not express (without alteration or loss) the meaning of the original proposition; in other words, the hypothetical clause is essential to the expression of the judgment.

This indicates that the distinction between categorical propositions and hypothetical propositions is real and vital; and the simplest test that can be supplied lies in the implication of the existence of the subject in every true categorical. In a true (or pure) hypothetical, on the other hand, nothing is taken for granted. If we discarded the terms Categorical and Hypothetical, we could not alter the fact that all propositions now included under either of them fall into two distinct classes, composed respectively of those that have existential implication and those that have it not, and that those that have it not can never find unequivocal expression without a hypothetical clause.

W. BLAIR NEATBY.

VII.—CRITICAL NOTICES.

The Will to Believe ; and other Essays in Popular Philosophy. By WILLIAM JAMES. London, New York and Bombay : Longmans, Green & Co. Pp. xvii., 332.

AT the risk of seeming to use the language of extravagant eulogy I should like to call this collection of Prof. James' essays a wholly admirable book, alike in form and in matter. That the form of any of Prof. James' literary productions should be deserving of the highest praise was indeed no more than would be anticipated by all who had ever enjoyed the grace of his style, the raciness of his phrases, the stimulus of his originality, in short the deftness of the manipulations whereby he is wont to charm the heavy indigestible dough of philosophic discussion to rise up into dainty shapes that need be disdained by no intellectual epicure. But it is the matter even more than the manner of Prof. James' teachings that renders his volume a delight to all lovers of philosophic literature. That a volume of essays on various topics, ranging in date from 1879-96, should possess a substantial unity surpassing that of many formal treatises is indeed a marvel, explained only by the fact in this case that they are welded together by the unity of a strong and picturesque personality. But the attitude towards philosophic problems taken up in these essays seems to me more remarkable even than the unity given to them by Prof. James' personality, and in a technical journal it is the more necessary to lay stress on this point as its importance is otherwise likely to be cloaked by the literary charm of Prof. James' manner, by his avoidance of cumbrous technicalities and formal elaboration, and by the engaging frankness and modesty with which he pretends only to express his personal feelings. There is a real danger that professed philosophers should come to believe that nothing can be profound but what is obscurely put, and that they should consequently pass over too lightly the lucidity which seems to reveal the depths of philosophic problems even to the uninitiated. Prof. James' essays are popular in this highest sense, that they can arouse the enthusiasm of the many without ceasing to stimulate the few. And yet he in no wise departs from the doctrine of sound science which he has expounded so brilliantly in his *Principles of Psychology*. It is true that we here have Prof. James making

incursions into the territory of general philosophy, but his preliminary raids give such promise of solid conquests, if ever he should find the leisure to advance in full array, that the opponents of his metaphysical views would be very ill-advised if they did not make use of the present opportunity in order to prepare themselves betimes to resist the coming onslaught.

The philosophic significance of the views sketched in Prof. James' present volume seems to me to reside chiefly in the fact that they mark a further step in the modern reaction against a one-sided and reckless rationalism—a reaction which bids fair ultimately to reconcile philosophy with common sense. That reaction has generally appealed to the *will* for a title wherewith to check the vagaries of the "*intellectus sibi permissus*". The fashion was set by Schopenhauer's Will-to-live, continued in Mainländer's Will-to-die, travestied in Nietzsche's Will-to-power, and last but not least, albeit in a somewhat different sense, Prof. James draws our attention to the importance of the Will-to-believe. For the selection of the title of the first essay to be the title of the whole volume is significant. That believe we must, but that as to the content and manner of our belief we are far freer than we have been taught to believe, is the pivot upon which Prof. James' thought revolves. Thus the book becomes a declaration of the independence of the concrete whole of man, with all his passions and emotions unexpurgated, directed against the cramping rules and regulations by which the Brahmins of the academic caste are tempted to impede the free expansion of human life. The great lesson it illustrates in various forms is that wisdom as well as dining is often a matter of great daring, and that there are not really any eternal and non-human truths to prohibit us from adopting the beliefs we need to live by, nor any infallible *a priori* test of truth to screen us from the consequences of our choice. Now that seems a most salutary doctrine to preach to a biped oppressed by many '-ologies,' like modern man, and calculated to allay his growing doubts whether he has a responsible personality and a soul and conscience of his own, and is not a mere phantasmagoria of abstractions, a transient complex of shadowy formulas that science calls 'the laws of nature'. As against the worship of such 'idols of the theatre,' Prof. James most opportunely reminds us that abstractions are made by men and for men and not men for abstractions, that they become not venerable but execrable when their origin is forgotten and the function for the sake of which they were formed is neglected. 'Pure' science in short is pure bosh, if by purity be meant abstraction from all human purposes and freedom from all emotional interest.

Prof. James himself describes his attitude as a "radical empiricism" (p. ix.)—*empiricism*, because he is "contented to regard its most assured conclusions concerning matters of fact as hypotheses liable to be modified in the course of future experience," and *radical*, because he will not take anything for granted, not

even that the universe *is* a universe in any debatable sense (p. 68). For he will not allow that anything has been determined by calling the world a universe, so long as the infinite alternatives to which the term might apply are not rendered definite by a description of the particular universe intended. Hence he will not "dogmatically affirm monism as something with which all experience has to square," but accepts "the opacity of the finite facts as given," and "the crudity of experience remains an eternal element thereof". But if so, he must needs be a pluralist, on the ground that "there is no possible point of view from which the world can appear as an absolutely single fact. Real possibilities, real indeterminations, real beginnings, real ends, real evil, real crises, catastrophies and escapes, a real God, and a real moral life, just as common sense conceives these things, may remain in empiricism as conceptions which philosophy gives up the attempt either to 'overcome' or to reinterpret in monistic form" (p. ix.).

These are brave words and of the happiest augury; for they may mean the dawn of an era in which teleological postulates will be admitted to underlie all human activities, when consequently the postulates of man's knowing activities will be subjected to as candid a criticism as the implications of his feelings and actions, and when their subordination to the needs and aims of the whole organism will win due recognition.

The paper on "The Will to Believe" strikes Prof. James' keynote boldly by declaring that in all cases of genuine option between intellectual alternatives—that is in all cases where both alternatives appeal to us in any way—our decision not only lawfully may but must be made by our passional nature. It is idle in such cases to avoid decision by suspense of judgment; for though we may thus escape error, we also lose our chance of gaining truth. Very often, as is well illustrated by the Alpine climber in a desperate case, to refuse a decision is itself a decision; the climber must leap to safety or perish (p. 59). In such cases he who hesitates is lost, while conversely faith "creates its own verification," so that "the thought becomes literally father to the fact as the wish was father to the thought" (p. 103). Hence Prof. James "cannot see his way to accept the agnostic rules for truth-seeking or wilfully agree to keep his willing nature out of the game". For "a rule of thinking which would absolutely prevent one from acknowledging certain kinds of truth, if those kinds of truth were really there, would be an irrational rule" (p. 28). And the more so if it is realised that it is not really a question of intellect *versus* feelings, but of intellect *plus* one passion, "the horror of becoming a dupe," *versus* the rest.

The truth is that the intellect is entirely built up of practical interests, cognition is but "a cross-section at a certain point of what in its totality is a motor phenomenon," and "incomplete until discharged in act" (pp. 84-5). "Conceptions, 'kinds,' are teleological instruments," "every way of classifying a thing is but

a way of handling it for a particular purpose," "no abstract concept can be a valid substitute for a concrete reality except with reference to a particular interest in the conceiver" (p. 70). It should be recognised that the adoption of the evolutionist standpoint and acceptance of a reflex-action theory of mind commits us to "regarding the mind as an essentially teleological mechanism," so that "the conceiving or theorising faculty functions *exclusively for the sake of ends* that do not exist at all in the world of impressions we receive by way of our senses, but are set by our emotional and practical subjectivity" (p. 117). The sciences, in short, are thoroughly teleological at bottom; their "purpose is to conceive simply and to foresee" (p. 119). In so doing they may abstract from teleology, as from anything else, but the abstraction is itself teleological.

The doctrine of the mind's functioning which Prof. James urges in these terms is, of course, one which may easily be misrepresented as a new piece of theological obscurantism, intended to palliate the substitution of blind faith for disinterested adhesion to truth at whatever cost; and as it will certainly suit the purposes of some so to misunderstand it, that misrepresentation may almost be regarded as an accomplished fact. Yet it deserves to be pointed out that Prof. James' actual doctrine is not altogether new and almost indisputably true. The observation *possunt quia posse videntur* did not escape the sagacity of antiquity. And that the mind must be treated as a thoroughly teleological instrument is a conclusion which all modern science renders inevitable. Biologically, the brain is primarily an exceedingly plastic organ for effecting exceedingly varied adaptations to the organism's ends and conditions of life: it would seem to follow at once that the mind's action must be teleologically vitiated throughout, and that there is not the slightest antecedent reason for supposing that it functions satisfactorily except with reference to the practical needs of the organism. If then there existed absolute truth, of which man was not the measure, it would be most natural that the human mind should prove inadequate to its comprehension. But fortunately there is no ground for the assertion of any such absolute truth. What passes for such is itself an abstraction, which may have its proper function in the system of human ends, or may be perverted, like other aberrant instincts, into a mode of functioning useless, and even dangerous, to the whole organism. We are shut up then in a thoroughly anthropomorphic view of our experience. But it is an unwarrantable inference that such a view is *not* adequate to our needs. And it seems a most valuable suggestion of Prof. James' that we may often make it adequate by trying and by proceeding on the assumption that it is adequate. Whether *e.g.* the world is knowable or not may be, like the question whether life is or is not worth living (p. 60), one of the truths that become true by our faith (p. 96), one of the cases where "our personal response," the eye with which we regard the

facts, may make all the difference. Certainly this suggestion will go some way towards explaining the strange divergence of the estimates of the world which are come to by different persons and in different sciences.

For it is not the least factor in the relief held out to us by Prof. James' doctrine that it emancipates us from the superstition that our sciences set forth a rigid, unbending and unhuman order of fact which our volitions and emotions fret against in vain. The sciences appear simply as methods of transmuting the givenness of facts into shapes subservient to our various purposes, and their 'principles' are adopted *ad hoc*. They may be as various as those purposes and as numerous as the sciences, though there is a natural tendency for the methods and assumptions of the predominant science to infect the rest. As Prof. James says, they are "chapters in the great jugglery which our conceiving faculty is for ever playing with the order of being as it presents itself" (p. 129), and it is a poor juggler that is taken in by his own tricks. There is no abstract sacrosanctity about the rules of science, and it may well be that "to the end of time our power of moral and volitional response to the nature of things will be the deepest organ of communication therewith we shall ever possess" (p. 141). Such sayings should not be taken as derogatory to the majesty of science, but they contain a much-needed vindication of the rights of man, the maker of all sciences.

This doctrine of the function of faith, so far considered, pervades not only the essay on "The Will to Believe," but also those entitled "The Sentiment of Rationality," "Reflex Action and Theism," "Is Life worth Living?" and "The Dilemma of Determinism". The last of these also defends the interesting position that the alternative to determinism, *viz.*, the reality of chance, in the end amounts only to an assertion of pluralism. It implies that the universe is not a rigidly and unalterably connected whole in which everything is fore-ordained and no windfall can cause an agreeable surprise, but rather "a joint stock society in which the sharers have both limited liabilities and limited powers" (p. 154), and "no part can claim to control absolutely the destinies of the whole" (p. 159). And inasmuch as after the event the universe with chance in it appears to the determinist eye as quite as rational as that which admitted of no contingency (p. 156), the question is theoretically insoluble (p. 159). No wonder then that as a matter of personal taste Prof. James prefers "a world with a chance in it of being altogether good" (p. 178) to a thoroughly determined world "of which either sin or error forms a necessary part" (p. 164). In reality, however, Prof. James would seem to understate his case. Once more the solution of the antinomy lies in observing the methodological character of the determinist assumption. The assumption is made for certain purposes of ours in order to render events calculable, but it would be absurd on that account to attribute to it an absolute validity and to

deprive ourselves of the ethical stimulus of an indeterminism that holds out the prospect of a victory over evil.

The same point is urged with great force in the good-humoured attack on Hegel's system entitled "On some Hegelisms" where "the pure plethora of necessary being with the oxygen of possibility all suffocated out of its lungs" is shown to render impossible all good or bad, and to reduce all things to "one dead level of mere fate" (p. 292). The method of Hegel, whom Prof. James playfully calls "a philosophic desperado," whose career is "one series of outrages upon the chastity of thought" (p. 274), seems to him to consist essentially of a *refusal to distinguish*, which enables to take what is true of a term *secundum quid*, to treat it as true of the same term *simpliciter* and then to apply it to the term *secundum aliud* (p. 280). And, he adds, in certain stages of nitrous oxide intoxication similar Hegelisms may be produced almost automatically.

The essay on "The Moral Philosopher and the Moral Life" contains the noticeable points that there is no abstract good or moral order *per se*, that "without a claim actually made by some concrete person there can be no obligation, but that there is some obligation wherever there is a claim" (p. 194), that consequently wrongness does not become "more acceptable or intelligible when we imagine it to consist in the laceration of an *a priori* ideal order than in the disappointment of a living personal God" (p. 196). The best world imaginable is that which satisfies all claims (p. 202), the best attainable that which satisfies as many demands as possible (p. 205), since "the essence of good is simply to satisfy demand" (p. 201). It would surely dissipate many atrocities of ethical theory to have it recognised that no moral order can be perfect that leaves unsatisfied the claims of any moral being however humble; yet it would seem that Prof. James somewhat exaggerates when he declares (p. 201) that "the various ideals have no common character apart from the fact that they are ideals". If that were so, the 'chance of a world altogether good' would be a poor one; but we may surely indulge in the thought (and so perhaps transmute it into fact!) that the various claims of the various beings may be made to converge into forms which are no longer mutually destructive.

The essays on "Great Men and their Environment" and "The Importance of Individuals" form eloquent protests against the misapplication of evolutionist principles which leads to the minimising of the function of great men. Great men are produced by physiological causes so remote from any traceable influence of the environment that they must from the point of view of the latter be regarded as 'accidental'. Yet their action often twists the course of history and gives it a direction in which it flows for ever after. Hence Prof. James confesses himself a hero-worshipper, *malgré tout*, and subscribes with all his heart to the remark of his carpenter that "there is very little difference between one man

and another; but what little there is, is *very important*" (p. 256).

The volume closes with an essay on the work of the Society for Psychical Research, which not only forms a chivalrous defence of a much and maliciously maligned subject, but also gives what is probably the best brief account of the achievements and aims of the little band of dauntless workers who have not feared the defilement of their academic robes by the pitch of superstition, if perchance they might extract coal-tar products of value from the uninviting waste of vagrant fancy. It seems possible that eventually—let us say towards the latter end of the twentieth century—they will have their reward, and be numbered among the heroes and martyrs of a more catholic science, as the pioneers of truths that have a more direct bearing on human welfare than any other; but at present it is probably more profitable to emphasise Prof. James' ingenious suggestion that the believers in the occult of all sorts are in reality instinctive rebels against the abstraction from personality which science commits in its anxiety to arrive at universal laws. Such persons take a personal and romantic view of life, and believe that events *are* respecters of persons. And, curiously enough, experience to some extent bears them out, as to a large extent it bears out the scientific disregard of particularity. And they may be right, wholly or in part, for philosophically "personality is the only complete category of our thinking".

Prof. James' explanation is so ingenious that one hesitates to criticise it as rather far-fetched; no doubt the abstraction from personality renders science more and more unsatisfactory the higher it rises, no doubt also belief and disbelief in the personal significance of events may to some extent construct their own verification after the fashion indicated in Prof. James' earlier essays; yet it would seem to be confidence in their real or imaginary personal experience rather than in the authority of science, and not any more recondite considerations, that actuates believers in the supernormal. Moreover if they and Prof. James happened to be right in their diagnosis, the outlook for psychical research would be even gloomier than it is. For the Society for Psychical Research was founded for the purpose of treating these experiences in accordance with the recognised procedure of the other sciences. If then their character were essentially personal, they would baffle the methods of science as such. Still we have to thank Prof. James for the idea, which suggests the further corollary that the real reason why ordinarily the 'universal law' operates so successfully, why the natural order seems to be no respecter of persons, is that personality is not yet sufficiently developed and that persons are not yet sufficiently differentiated to render it unprofitable to group them together.

In drawing attention to the manifold suggestiveness of Prof. James' work I have not gone out of my way to quote his numerous

epigrams, in spite of the temptation of constructing out of them a very delightful anthology. But though he has thrown his bomb shells into the stifling *aura* which surrounds many a hoary prejudice of the philosophic world, yet I firmly believe that, like the book as a whole, they will be found in the end to have contained nothing but the purest ozone, to freshen and cleanse the atmosphere of life.

F. C. S. SCHILLER.

La Modalité du Jugement. Par LÉON BRUNSCHVICG, Ancien élève de l'École normale supérieure, Professeur de philosophie au lycée de Rouen, Docteur ès lettres. Paris: Félix Alcan, 1897. Pp. 246.

THE reader will probably agree very heartily with the author of this book, that modality is an excellent point from which to approach the fundamental problems of metaphysics. If we could once fully comprehend the significance of existence and necessity, and their relation to one another, we should have established a secure foundation for philosophy. And it is this full comprehension that M. Brunschvicg here proposes to give us. He announces his method as that of 'criticism'; and the main object of his book, like that of Kant's great *Critique*, is to determine the limits of human knowledge. He raises great expectations, therefore; and I am afraid it must be owned that he disappoints them most profoundly. This is not because, being professedly 'critical,' his results are, like Kant's, mainly negative; but rather because his actual performance is very uncritical. His work claims to be original, and to a reader unacquainted with modern French philosophy in general and, consequently, also with the 'neo-critical' school, it certainly seems to be so. M. Brunschvicg has succeeded in finding a new way of grouping some old truths and not a few errors, both old and new; but his novelty, it seems to me, is not even suggestive: for he has failed to grasp the essential merits of the systems, which he proposes to supersede, and therefore naturally cannot deal with the real difficulties, which are still inherent in those systems, despite their high degree of success. M. Brunschvicg's style, however, is certainly obscure, tending rather to successions of moderately epigrammatical phrases, of which the logical connexion is not apparent, than to lucid argument; so that it is quite possible he may have a meaning which has escaped me. For this reason I cannot regard myself as freed from the customary obligation to recommend a reference to the book itself; though I may add that those parts in which M. Brunschvicg's meaning is plain do not seem to warrant a sanguine view as to those parts in which it is not.

The book is divided into six chapters, of which the first 'de-

finest the problem'; the second is historical; the third gives M. Brunschvicg's own view of the nature of modality; the fourth attempts to determine the modality of twelve types of 'theoretical judgment,' and the fifth does the same for twelve corresponding types of 'practical judgment'; finally, the sixth chapter is a short 'Conclusion'.

The first chapter opens with a statement of the author's conception of philosophy, under the head of 'the notion of intellectual activity'. He explains that the aim of philosophy is 'to be an integral knowledge'; and that, whereas metaphysicians at first tried unsuccessfully to obtain this knowledge, by determining 'the total object,' 'criticism' has recognised that ontology, *i.e.* such a knowledge of 'being, as such' (*l'être en tant qu'être*) is impossible, and that philosophy must confine itself to 'being, as known,' or rather, says M. Brunschvicg, to 'knowledge, as being' (*la connaissance en tant qu'être*). Now, it is precisely in this last identification that I think the fallacy of M. Brunschvicg's whole position lies. His 'criticism' seems never to have been so thorough as to raise the question: Is 'being, *quâ* known' really indistinguishable from 'knowledge, *quâ* existent'? We may fully agree with him that, when he says 'Intelligence is transparent only to intelligence,' and therefore concludes that the study of 'will' cannot be 'the fundamental and primitive part of philosophy,' he is expressing an important truth; but, so far from drawing from this the inference that the essential function of philosophy is the study of 'intellectual activity,' there is surely good reason for inferring exactly the opposite. Intellectual activity, *quâ* activity, seems to be merely a form of conation, and is therefore a subject-matter of psychology, not of philosophy. It is not the *process* of cognition or judging, but knowledge or judgment, in so far as they are true, which offer to metaphysics that point of departure, which justifies itself, and so distinguishes this from every other study. M. Brunschvicg, in fact, seems to lay himself open to the very question which he urges against 'the first metaphysicians'. How does he know that this object, which he proposes to study, 'cognition, *quâ* existent,' is 'directly grasped'? '*Quâ* existent' it would seem to be just as exterior to him as any other object. But 'being, *quâ* known' is an object not liable to the same objection. For the question: How do I know that what I know *is*? supplies its own answer, simply because, to say that a thing is known, implies that it is true; not because, to say that it is known, implies that it is an object of intellectual activity. You cannot affirm that nothing whatever is true, without contradicting yourself; for you imply that what you affirm is true itself; but you can affirm that intellectual activity does not exist, without a contradiction; because what you affirm may be true, even if it is not true that you are affirming it.

M. Brunschvicg seems, then, throughout his book to confuse epistemology with psychology. He never asks himself the ques-

tion, What is the difference between truth and error? and this neglect shows itself in many surprising doctrines. One of these, which reappears frequently, occurs in his very first chapter. He here distinguishes 'science' from 'philosophy,' very properly, I think, by the fact that science presupposes a determinate object, which it examines as 'fixed and immovable'. But he seems to think that, for this reason, thought can only be studied scientifically in the form of language. We are not, therefore, surprised to find (p. 6) that the Aristotelian Logic is identified with grammar or philology; and that the difference between affirmation and negation is represented as concerning only 'the translation of thought, not thought itself' (p. 13). Psychology, again, on this view, can, of course, not be a science; and accordingly we find M. Brunschvicg appealing to 'psychological analysis' in confirmation of his view that 'relations' have no significance for what he considers the true, or philosophical, Logic (p. 13, note). Similarly Mill's doctrine of 'association' is simply a result of 'philological analysis' (p. 10). Many would have thought that its lack of logical significance was due to its psychological character; but for M. Brunschvicg, on the contrary, it is not true Logic, just because it is *not* Psychology.

Again, we should expect to find that where the analysis of 'intellectual activity' is identified with logical analysis, some difficulty would be found in distinguishing that which is logically, from that which is temporally, prior. And M. Brunschvicg does not disappoint us. The twelve types of judgment, which he takes to illustrate his doctrine of modality, cannot, indeed (he tells us), be deduced from the forms of modality *a priori*; but, nevertheless, they are to be arranged in a systematic order, according to the modality which they exhibit (p. 111). And this systematic order, so far as it is systematic at all, corresponds strikingly with the order of genetic psychology. The first type in the theoretic list is a mere 'unconscious' 'psychical fact,' such as, according to M. Brunschvicg, is exhibited in catalepsy (and I do not know enough psychology to contradict him). The first in the practical list is, similarly, the purely automatic movement of the organism, which, however, M. Brunschvicg seems to regard as necessarily preceded by a certain amount of conscious psychical effort, which he finds in 'instinct': it is, I suppose, merely because he makes this mistake of taking the development of instinct to imply conscious rather than sub-conscious adaptation, that he does not begin with that. But we have not merely M. Brunschvicg's deeds to appeal to, when we accuse him of confusion in his use of 'prior' (*antérieur*); he has given us, in his Conclusion (pp. 238-240), a truly wonderful passage, on the connexion of time with modality. He here tells us that 'the judgment, in order to posit the existence of the object, as independent of its own existence, posits the object as being before the judgment, if the judgment is theoretic, and as to be (*devant être*) after the judgment, when it is

practical; the judgment of recognition (*constatation*) gives us the notion of priority, and the judgment of action gives us the notion of posteriority' (p. 239). He then adds a note to warn us, that he is not here concerned 'with deducing the parts of time, but merely with showing the correlation of those parts with the different forms of judgment'. Yet he immediately goes on to say that the doctrine 'that it is the distinction of judgments which gives us the means of understanding and basing the division of the parts of time' is 'in no way paradoxical,' as if that were what he *was* concerned with; and in the text, after objecting to Aristotle for holding that 'the nature of time was the justification of the different modalities,' he goes on to assert that 'inasmuch as past and future are the object of the judgment, they cannot have the same title to existence as the judgment itself'. Now what I should like to ask of M. Brunschvicg, is whether a mere 'correlation' of the parts of time with the forms of judgment would give him the right not only to contradict Aristotle, but also to assert that time has not the same title to existence as the judgment, and that the latter is in some way the 'basis' of time. He seems to admit no alternative between 'deducing' one from the other, and merely correlating them; and yet he persists in regarding them as somehow on a different level. It is needless to say that this strange relation, for which his system leaves no place, is just what most people mean by 'logical dependence': M. Brunschvicg is trying to show that the judgment is logically 'prior' to time. But naturally he can find no way of saying so, since he regards judgments as nothing but 'acts,' or 'successive moments of intellectual activity,'—and those moments 'really' successive too (p. 238). He holds that a 'Dialectic' such as Hegel's is condemned, because its stages must be homogeneous, and all stages being necessarily 'successive,' the only homogeneity possible for them must be that of abstract time; and we have no right to abstract. In short, he manages to collect within the space of these few pages an almost incredible complication of self-contradictory nonsense. We may notice, in passing, that, in the note above referred to, he reaches the conclusion that 'the consciousness of the spontaneous life which unrolls itself through the moments of time, implies a centre of reflexion which does not elapse with the course of time'; whereas it is his fundamental objection to Descartes' '*Je pense, donc je suis*,' that 'thought' only warrants the affirmation of itself, not of any 'unity' such as the 'I'. Has, then, this 'centre of reflexion' no unity; or is it the same thing as the 'reflexion' of which it is the centre?

Again, although, as we have seen, he maintains in his first chapter that only a knowledge of knowledge can be an 'integral' knowledge, such as philosophy must be, he justifies his consideration of the modality of practical judgments in chapter v. by telling us that 'the truth of a philosophic conception scarcely allows of any other criterion than the integrality' (if I may revive the

word) 'of its application' (p. 182); so that we must expect our conception of modality, which has already been supplied by the only possible 'integral' cognition, nevertheless to receive confirmation from its applicability to action, which must itself be accepted by speculation 'as a datum which is, by nature, irreducible to it and goes beyond it'. This would seem to suggest not only that the knowledge of knowledge is not integral by itself, but also, that, when M. Brunschvicg told us in chapter i., that it, and not the integral object, must be taken as our basis in philosophy, he knew all the time that an integral object must also be presupposed, and even that action formed a part of it. Nevertheless, on p. 183, he again attempts to introduce his limitation of our opportunities to study the practical judgment, by saying that 'the act' is a datum for that purpose, 'comparable in every point to the verbal expression of the theoretical judgment'. Now, considering the scorn with which he has spoken of the 'philosophical' logicians, we should hardly have expected to find a considerable portion of his book occupied with analysis of a subject-matter, which he himself admits to be 'comparable in every point' with that to which they were so trivial as to limit their analysis. Moreover, he does not hint that his own analysis of the 'theoretical judgments' is merely a matter of grammar, and yet he seems to make no distinction, in point of treatment or significance, between that and the corresponding analysis of practice.

But it is time we returned to M. Brunschvicg's main theme. In his first chapter he proceeds to analyse the concept, the judgment, and the syllogism, with the view of showing that the first and last are both reducible to the judgment, as the fundamental and unique 'act of intelligence'. He concludes his discussion of the judgment by characterising it as 'the act which posits the *copula*'; but he has already explained that this *copula* which it posits need not have two terms to connect. On the other hand, he maintains that the concept must always contain a relation between 'extension' and 'intension'; and he seems to obtain even this doubtful result by not distinguishing the concept itself from the act of conceiving. His criticism of the syllogism is based upon the remark that the major must be regarded as expressing the identity of two qualities, and the minor that of two individuals. In order to draw a conclusion from them, it is then necessary that the individual designated by one of the qualities should be 'identified' or 'unified' (see p. 14) with that quality, by an act precisely similar to that which constitutes the concept. This, he maintains, is the only true 'judgment' in the whole process. But he himself supplies a criticism on his theory, by producing a 'rectified syllogism,' of which the conclusion is that 'Frenchman' is not 'man'; the apparent falsehood of which he explains away by saying that it denies the identity of the two predicates, whereas his previous examples were based upon the presupposition of identity between precisely similar predicates, *e.g.*, 'just' and 'philosophic'.

Having settled that the essential characteristic of judgment is to posit the copula, or affirm 'being,' and that the ordinary notions of 'possibility,' 'reality,' and 'necessity' are ambiguous, he institutes an inquiry into the meaning of 'being,' in the hope of discovering by its analysis, exact notions of its different modalities. His conclusion is that the judgment has two forms, 'interiority,' where it affirms a necessary relation, and 'exteriority,' where it simply recognises a sort of 'shock'. His analysis of particular judgments seems to lead to the conclusion that neither of these two forms can be found in its purity. All actual judgments are of a 'mixed form,' and their modality is only possibility. It is in this mixture of the two forms that M. Brunschvicg finds 'the possibility of error'; but, on the other hand, in the actual consideration of judgments, he frequently uses the fact of possible error as a proof that the judgment is mixed. In fact, though M. Brunschvicg asserts that the true aim of Logic should be to determine the *legitimacy* of the affirmation of being, his definition of judgment as its *mere* affirmation, and his exclusion of any other means for determining truth than the analysis of judgment in this sense, effectually prevent his ever really approaching the question of validity, which, we agree with him, is the only fundamental one. In how puerile a spirit he views his main subject, modality itself, may be shown by the conclusion of his third chapter, where he boasts that, whereas Hegel made reality, possibility and necessity all equally necessary, his own result is that 'it is necessary there should be an ideal form of necessity, it is real that there is a form of reality, it is possible there should be a form of possibility'. He makes no serious attempt to justify this statement, which, if it were true, would surely throw considerable doubt on his own doctrine that all our actual judgments are merely possible. With regard to his distinction of the forms of 'exteriority' and 'interiority,' the significance of it is obvious; but, whereas Hegel's attempt to exhibit their close unity, only wins from him the remark that Hegel's system was a dualism, he himself, while insisting that they have nothing in common, seems yet to consider that they are unified in such a way as never was before, by being merely posited as forms of that intellectual activity, which is warranted as 'one' merely by our 'profound sentiment' of its unity.

G. E. MOORE.

The Sense of Beauty : being the Outlines of Æsthetic Theory. By GEORGE SANTAYANA. New York: Charles Scribner's Sons, 1896. Pp. x., 275.

Eine Theorie des Schönen : mathematisch-psychologische Studie. Von P. I. HELWIG. Amsterdam: Delsman & Nolthenius, 1897. Pp. viii., 87.

THERE are three different ways, Dr. Santayana tells us, in which the study of æsthetics may be approached. We may exercise

æsthetic activity, pass the æsthetic judgment; we may explain art historically, as a department of anthropology; or we may employ the psychological method, and inquire into the origin and conditions of the æsthetic judgment and sentiment as facts of consciousness. It is the latter task which the author has set himself in *The Sense of Beauty*. A poet and essayist of no small merit, he has here laid aside construction for theory; and though his preface modestly declares that the book "simply puts together the scattered commonplaces of criticism into a system, under the inspiration of a naturalistic psychology," the theory shows much of originality, and sets many of the accepted canons in a new and clearer light.

The answer that Dr. Santayana returns to the vexed question of the nature of beauty is, put briefly (I shall recur to the definition later on), that it is objectified emotion. And from the psychological point of view this is, probably, the most satisfactory answer that can be found. The statement is true enough, as the author means it at the end of his inquiry, that "if we look at things teleologically . . . beauty is of all things what least calls for explanation". But it is equally true that the psychologist, at the beginning of his investigation, cannot be satisfied till he has found a survival sanction for the æsthetic as for the moral, religious and intellectual sentiments. To refer beauty to the 'personifying apperception' is to connect æsthetics in the most intimate manner with religion, and thus to give it one of the strongest possible sanctions; while it would seem, too, that the psychology which attaches the play sanction to æsthetic activity only after the humanising of nature has been accomplished is sounder than that which derives the æsthetic attitude directly from an ultimate play impulse. The differentia of æsthetic pleasure, then, is its objectification. Furthermore, beauty, by the fact that it is objectified *emotion*, becomes a value; and as a value possesses two distinguishing marks. It is positive, never the perception of a real evil; and it is intrinsic, never the result of the utility of object or event. "These two circumstances sufficiently separate the sphere of æsthetics from that of ethics." It may be added that neither attribute presents any psychological difficulty.

Having thus defined beauty, the author proceeds to discuss it under the three headings of materials, form and expression. Any sensation process that can enter into an emotion can also, of course, form part of objectified emotion, *i.e.*, furnish an ingredient of beauty. But psychology has come to lay greater and greater stress upon the organic sensations as factors in the emotive consciousness. Dr. Santayana accordingly begins his account of æsthetic material by reference to the obscure psychoses that accompany the discharge of organic function within the body, such as compose, *e.g.*, the 'general feeling' of bodily health. Of the more definite organic sensations, those that constitute the sexual instinct are of especial æsthetic value. Less important are the

social impulses: "social objects . . . are diffuse and abstract: . . . the great emotions that go with them are not immediately transmutable into beauty". Smell, taste and touch are also of small importance for æsthetics. Sights and sounds offer the greatest qualitative differences, and are the most easily objectified of all sensations: their contribution to the sum of beauty is proportionately large.

Here, however, we come upon a psychological difficulty. We are dealing with the materials of beauty. Now sights and sounds, as sensations, and even (this is at any rate true of sounds) as isolated sensation complexes, have very little affective tone; nothing like so much as smells and tastes. Yet sense feeling, the author says, enters largely into the æsthetic enjoyment of painting and music; there is a 'sensuous beauty' in both. It may be, perhaps, that with recurrence of the primitive act of objectification the primitive sense feelings, pleasure in mere sight and mere sound, also recur in the civilised mind, however threadbare we may have worn the sights and sounds that we use for the ordinary communication of ideas. This appears to be the writer's view; he points to the sensuous delights of children and savages (pp. 79, 163). It may be, however, that what purports here to be sense feeling is in reality a much reduced emotion; at least the thought is suggested by such phrases as 'royal' purple and 'angry' red, or the author's 'tender' blue of the sky (p. 100). The question is worth explicit discussion.

A similar difficulty confronts us at the outset of the chapter on Form. I have said that Dr. Santayana defines beauty as objectified *emotion*. This is surely the only correct formulation from the psychological standpoint. The sense feeling is not objectified: the emotion is the simplest process in the hierarchy of affective states that has objective reference. And it seems to represent the writer's general position. When he speaks of objectifying the 'feeling' that accompanies 'perception' it is the perception of a concrete thing, the assimilation, that he has in mind; else he could hardly write that "there is in the mere perceptibility of a thing a certain prophecy of its beauty". Now, however, his terminology misleads him. Physiologically, the perception of form is conditioned by the associative network of retinal local signs and muscular sensations. But this does not allow us to make muscular tensions the immediate vehicle of the æsthetic judgment. The "indifference and sameness of sensation," we read, "in whatever direction some accident moves the eye, accounts very well for the emotional quality of the circle". "The comfort and economy that comes from muscular balance" is in some cases "the source of the value of symmetry". Rather must it be true that, while no sensibly unpleasant form can ever be æsthetically pleasing, the æsthetic pleasure in form is due to some emotion (restfulness, ease, satisfaction) which the contemplation of form sets up. How it came about that, with developing

intelligence, form as form caught the attention of man, we shall probably never know ; but the forms that did so must have been striking, and are therefore more likely to have been sensibly unpleasant than sensibly pleasant.

The beauty of form, "the most remarkable and characteristic problem of æsthetics," being thus explained, psychological difficulties are over ; the chapter runs smoothly in theoretical and hortatory channels. There are good discussions of the principle of unity in variety, and of the relation of utility to beauty. Perhaps the most important sections are those that treat of the origin and value of types, and of the special shaping of æsthetic ideals : "the generic image has been constructed under the influence of a selective attention, bent upon æsthetic worth". The relativity of beauty is strongly insisted on. Literary form is illustrated by reference to plot and character drawing.

The concluding chapter is occupied with æsthetic expression. "Whereas in form or material there is one object with its emotional effect, in expression there are two, and the emotional effect belongs to the character of the second or suggested one. . . . The value of the second term must be incorporated in the first." Here the author has to face the problems of tragedy and comedy, wit and humour, the sublime and the grotesque. Of all he has something pertinent and suggestive to say. He sets out from the thesis that art does not seek "the pathetic, the tragic, and the absurd ; it is life that has imposed them upon our attention, and enlisted art in their service". The tragic emotion is complex : we suffer with the sufferer, but our suffering is overbalanced by æsthetic pleasure, pleasure in beauty of material, beauty of form, and "the continual suggestion of beautiful and happy things, which no tragedy is sombre enough to exclude". To this must be further added the intellectual interest in truth. Tragedy rises to sublimity with the final assertion of self over against an uncontrollable world ; the mind recoils upon itself, conscious of its independence ; self-liberation is the essence of sublimity. Throughout, the writer keeps his psychology well in view.

Such, in brief outline, is a theory which a finished presentation makes as pleasurable to read as condensation and range of topics make it difficult to summarise. A notice of it should not end without reference to the many quasi-aphoristic sentences that force the reader's attention from time to time. "A grateful environment is a substitute for happiness ;" "the simplest thing becomes unutterable if we have forgotten how to speak ;" "theory helps us to bear our ignorance of fact ;" these and similar sayings are not mere purple patches, but the natural culminations of definite arguments. The book as a whole may be cordially recommended to the notice of psychologists. In a second edition the author will, perhaps, do well to bring out more explicitly the element of value in the logical judgments of truth and falsehood, and to draw more largely for his illustrations upon music, the most detached and, in a sense, the youngest of all the arts.

Dr. Helwig attacks the problem of the nature of beauty in a very different way. Whenever we pass an æsthetic judgment, he says, we choose between quantities, but between quantities as subjectively symbolised (colours, tones, forms, etc.). The ugly is always the too much or the too little of these quantities. The beautiful is the average, the type, stored unconsciously in memory, and unconsciously compared with the given presentation. Beauty and the pleasure in beauty are therefore quite different things. There are four causes for individual variation in respect to the standard of beauty: individual constitution, difference of experience and environment, the number of aspects under which everything can be regarded, and difference in symbolic meaning and association.

The mathematical development of the theory, and its application to certain experimental results, show that the type corresponds to the geometrical mean of the given presentations. Of the importance of such a conclusion there can be no doubt. But it must be remembered that the æsthetic judgments as yet procurable in the laboratory are simple in character and limited in range; so that what holds of them need not hold of beauty in general. It is more probable, as Dr. Santayana points out, that the type is modified in the direction of pleasure; the typical or ideal woman has a more than average stature, more than averagely large eyes, etc. Dr. Helwig has therefore laid himself open to the charge of overhasty generalisation. Moreover, the divorcement of beauty from the charm of beauty seems more than questionable; if beauty is perceived, it is felt; if it is not felt, it is not perceived, *i.e.*, does not exist for the individual who is left unaffected by it. And, lastly, the extension of the theory to cover the sentiment of sublimity is arbitrary and fanciful. These defects are, however, the defects of qualities; the book is an independent and original contribution to theoretical æsthetics.

E. B. TITCHENER.

VIII.—NEW BOOKS.

Aristotle and the Earlier Peripatetics: being a translation from Zeller's *Philosophy of the Greeks*. By B. F. C. COSTELLOE, M.A., and J. H. MUIRHEAD, M.A. 2 vols. London, New York and Bombay: Longmans, Green & Co., 1897. Pp. xii., 520; x., 512.

THIS translation "embraces part ii., div. ii., of the third edition of Dr. Eduard Zeller's work on *The Philosophy of the Greeks in its Historical Development*. It is made with Dr. Zeller's sanction, and completes the series of volumes issued from time to time by Messrs. Longmans as translations of the various sections of that exhaustive work." All students and teachers of Greek philosophy in the English-speaking world will welcome this long-expected version. In some respects the section on Aristotle is the best portion of Dr. Zeller's great work, and, in the absence of any complete and satisfactory English book on the subject, it is the portion which it was most necessary to have translated. It is, indeed, a pity that we have had to wait so long; for the text here translated was published in 1879. Still it probably represents in the main the author's present views, and would require less alteration than some other parts of the English translation. In vol. i., p. 102, there is a note, inserted I suppose by the translators, which simply states the fact that since the text was written the treatise on the Athenian Constitution has been recovered.

The translators have done their work excellently, and a somewhat careful examination has revealed very few matters to which objection can be taken. In vol. i., p. 28, note 2 contains this sentence: "The continuous lecture on a definite theme is expressed by *πρὸς θέσιν λέγειν*: a more cursory treatment by *ἐπιχειρεῖν*." For "a more cursory treatment," should be here substituted "dialectical discussion". The German is "*Deputation*"—evidently a misprint for "*Disputation*". On p. 146, the word "exoteric" should be "esoteric". P. 159, "The *Genesis of Animals*"; the more usual title "*Generation*" is surely better in English. On p. 299, notes, the word "Apory" (Germ. *Aporie*) makes odd English, though it has been used by others. It has not the unlucky ambiguity of Grote's "theories" and "liturgies"; but is it not more in accordance with English usage to naturalise the form "*Aporia*"? On p. 309 *Geist* is translated first by "mind" and then by "spirit" in the same sentence. It would be better to use "mind" in both places. The passage relates to Aristotle's reference to the *νοῦς* of Anaxagoras. In vol. ii. p. 137, note, "Ethics" and "Politics" should not be in italics. It is the subjects, not the books, that are referred to. On p. 171, note 1, "public and private law" would be more English than "public and private right". "*Recht*" is always difficult to render; but "right" can only be used by express convention for it. P. 294, "Rhetorical proof proceeds by enthymeme

and instance". "Example" is perhaps a safer rendering for παράδειγμα (*Beispiel*) always; "instance" might suggest ἐνστάσις to the unwary student. It is a pity that in giving the references to other portions of Zeller's *Philosophy of the Greeks* the translators have not given them to the volumes and pages of the English version (except, of course, in cases where the passage referred to occurs only in later German editions than that from which the English version was made).

Dr. Zeller's work on Aristotle is too well known to require any special criticism or commendation now. It is in any case indispensable to the student and will probably not soon be superseded. An unfortunate error in the translation of a phrase in the "Will" which Diogenes Laertius gives as Aristotle's may provoke the scorn of the Greek scholar, but does not detract from the general learning and soundness of judgment which the veteran historian of Greek philosophy everywhere displays. By an error which he shares with (or borrows from) Grote, Zeller translates ξφῆ λίθῳ τετραπύχῃ "four statues of animals" (Transl., i., p. 38, *note*) instead of "marble images of four cubits high". ζῶον may be used, as by Plato, for images of human beings as well as of animals.

In discussing the problem of the present condition of the Aristotelian writings, Zeller seems too lightly to put aside the theory that "our Aristotle" may consist largely of notes taken by pupils at the Master's lectures. The theory does not exclude those which Zeller adopts. May not such books at least as the *Ethics* and *Politics* be a combination of (1) Aristotle's own notes for his lectures and for treatises he intended to write, (2) finished monographs on special points (*e.g.*, the Essay "On Friendship" *Eth. Nic.*, viii., ix.), and (3) notes taken by his pupils, and used by his editors, as, *e.g.*, by Hegel's, to supplement the material he left behind him?

Zeller's discussion of the phrase τὸ τί ἦν εἶναι (Transl., i., pp. 217-219, *note*) seems less clear than that of Schwegler (in his edition of the *Metaphysics*), with which on the whole it appears to agree. It is hardly quite fair to Aristotle to say, as Zeller does (Transl., i., p. 239), that he ignores the so-called fourth syllogistic figure of later logic, without adding that Aristotle (*Anal. Pr.*, i., 7, 29 a 19 *seq.*) did recognise the only moods of it (*Fesapo* and *Fresison* of mediæval logic) which are anything more than awkwardly expressed moods of the first figure. There is a curiously inaccurate sentence (quite correctly rendered by the translators) in the account of Aristotle's *Ethics*: "Now the activity of reason, in so far as it is rightly performed, we call Virtue" (Transl., ii., p. 142), Virtue, according to Aristotle, is not an ἐνέργεια: that is the principal reason why it is not the chief good. Zeller's sentence suggests a confusion (into which he does not mean to fall) between 'Virtue' and εἰδαιμονία. Zeller (Transl., ii., p. 128) seems hardly just to Aristotle's admirable account of the combination of reason and appetite in 'Will'; but that is a matter which would require a long discussion.

On details of this sort one may differ from Zeller or prefer the views of other interpreters of 'the philosopher'. But, if we look at the work as a whole, it is impossible not to admire its wide learning, its philosophical grasp, and above all its unvarying sobriety in judgment. Of this last quality it may be worth while to give three characteristic examples. In vol. i., p. 260, *note*, Zeller quotes approvingly G. H. Lewes's favourable opinion of Aristotle's observations of animal life; but he adds "All the more odd is it that Lewes should complain of Aristotle's failure to mention (in speaking of the cephalopods) the freshness of the sea-breeze, the play of the waves, etc. This is to blame Aristotle for not having the bad taste to drop from the realism of a zoological description

into the style of a *feuilleton*, or the impertinence to explain to people who had the sea daily before their eyes the things they had known all their lives." On p. 330, *note 5*, the translation of *οὐσία* by "substance" is rightly defended against an attempt to restrict that term to the sense in which it is used by Herbart. In vol. ii., p. 97, *note 3*, Zeller points out, like Bonitz, that Aristotle nowhere uses the term *νοῦς ποιητικός*; but he does not pedantically forbid the use of this convenient phrase to expositors of Aristotelianism from Alexander of Aphrodisias downwards.

D. G. RITCHIE.

The Disclosures of the Universal Mysteries. By S. J. SILBERSTEIN. New York: P. Cowen, 1896. Pp. viii., 298.

Mr. Silberstein's metaphysical system is one which it is difficult to take seriously, and yet—such is the author's vigour and earnestness of thinking—impossible to take in any other way. His problem and phraseology make it natural to compare him to Spinoza, to whose race he belongs; and, indeed, in his strictly deductive procedure, his confident dogmatism, and the boldness of his intellectual flight, he has something in common with his greater predecessor. On the other hand, his thought is pervaded by a mysticism and word-worship from which Spinoza was wholly free, and we lay down his book at the first reading with but a confused notion of what his system really is.

The volume contains four parts. The first deals with the idea of God, or absolute intellectuality. As when we set out to build a machine we have an image of it in our mind beforehand, so must the intellect of the universe have constructed a mental image of the entire universe before it was formed. But the machine, when built, takes its place in the endless and closed series of physical causes and effects. All the change here is illusory; the real existence of the physical world is an existence of potential matter or potential essence. This potential matter realises the abstract idea of the universe as a whole that has been framed by the absolute intellectuality or God—realises it, just as the machine built realises the idea of the builder.

Part ii. is entitled Creation or Absolute Emanation. The universe must be absolute and yet not self-existent. If it were not absolute, God would have existed at some time before it: it would be an accident of his nature. But our conception of him requires that everything related to him be related to him as his essence. If it were self-existent it could not be subject to change, as it is. Its existence was explained by Spinoza pantheistically. But (1) not every mental process can be a mode of the universal substance; for that is pure absolute wisdom, and the imagination, *e.g.*, contradicts itself. (2) The universal substance cannot ever possess the attribute of extension, which implies matter and its modifications; it must be conceived by the one attribute of thought. (3) The substance of extension is active and passive; the being of intellectuality is neither. We thus reach the conclusion that the creation of the universe is an eternal creation, an eternal emanation of the absolute intellectuality; thought is the absolute eternal emanator by its own nature.

How then does the non-absolute, how do particularised concrete things, come into existence? The answer is as follows: "Inasmuch as the essence of the universe issues forth from the very light of the mind, as a radiation of the intellectual waves or a photographic image, its absolute emanation becomes a general activity in the universal essence; and by this general activity the universe is actuated. It vibrates itself in spiritual waves and reveals itself according to time and to place in particularisations."

Part iii. discusses Matter and Force; the Universe in its Potentiality and Actuality. The treatment is historical: the Ionian and Eleatic schools, Aristotle, Kant, Descartes, Spinoza, Helmholtz are sharply criticised. Gravitation is replaced by the force of centrality, "the one tender or innermost force or principle in the universe, which holds and correlates the universe together". A brief excursus brings evidence for the fact that the Hindoo Brahma or Brahman is the patriarch Abraham, with the initial letter omitted.

Part iv. treats of Universal Mechanism; Motion and its Transformation. Newton's laws are reconsidered in the light of the principle of centrality, and the atomic theory replaced by the doctrine of the universal essence of parts i. and ii. Examples are given and worked out in detail. It is unnecessary here to dwell upon these: enough has been said to give the reader a general idea of Mr. Silberstein's method and results. For the full understanding of the system he must be referred to the book itself.

E. B. T.

Contemporary Theology and Theism. By R. M. WENLEY, M.A., D.Phil. (Glas.), D.Sc. (Edin.), Senior Professor of Philosophy in the University of Michigan, etc. Edinburgh: T. & T. Clark, 1897. Cambridge, Mass., U.S.A.: John Wilson & Son. Pp. 197.

The author tells us that the substance of this work was originally presented in the form of a Lecture, delivered some three years ago before the members of the Glasgow Theological Society. Its object was to depict the controversies which have agitated the modern theological world since the polemic between Kant and Schleiermacher was brought to an inconclusive issue at the end of the last century. Professor Wenley thinks that the character of contemporary speculative theology has been largely determined by the influence of Hegel, whose writings accustomed thinkers to interpret religious ideas from a genetic and historical standpoint, and to account for their existence by evolution instead of by revelation. The abiding miracle of the universe is the potentiality of development which manifests itself everywhere. Of this absolute miracle "Christianity is to be viewed as an integral and in nowise exceptional portion" (p. 36). Pages 39-60 are occupied with criticism of the General Principles of the Speculative School, of which Strauss and Baur have been the most pronounced representatives.

The recent phase of German theology, known as the Ritschlian School, betrays a decidedly reactionary tendency, owing, thinks Professor Wenley, partly to the teaching of Lotze, and partly to the impatience of Hegelian Absolutism, which has found expression in the common catch-phrase "Back to Kant". Ritschl's contention seems to be "that religion and the theoretic knowledge of the world are distinct functions of the spirit, which, where they are applied to the same objects, do not even partially coincide, but go *in toto* asunder from each other. Religion necessarily implies a teleological conception of the world; science, a causal one" (p. 86). The originality of the Ritschlian method consists in its attempt to establish Theism by means of Christianity, whereas other theological systems had assumed Theism as the premise of Christianity. With Ritschl Christ is the focus, the pivot and the starting-point of all religious faith and sentiment.

After discussing the questions of modern theology under the heads of Agnosticism and the Theistic Problem—the Principle of Rationality—Speculative Gnosticism—Personality, our author concludes with a

section entitled *The Final Idealism*. This peroration, which is a little too rhapsodical for a philosophical treatise, shows that Professor Wenley by no means sympathises with the retrograde movement noticeable in contemporary German theology. He would apply the Hegelian method to the explanation of religious ideas if we would only assume the social sentiment as the key of theistic belief. God made man in his own image, but it was not the man as individual, but the man as an organic constituent of a social aggregate. "Rationalism, not in the peddling eighteenth century sense, but in the guise of a socialised reason, wherein all men are partakers, and whereby alone they can execute valid judgment upon the deep things of life, constitutes the ægis of a satisfactory theology" (p. 188).

T. W. LEVIN.

"*The Ethical Library:*" *The Teaching of Morality in the Family and the School*. By SOPHIE BRYANT, D.Sc., Head Mistress of the North London Collegiate School for Girls, author of *Educational Ends and Studies in Character*, etc. London: Swan Sonnenschein & Co., Limited. New York: The Macmillan Co., 1897. Pp. 146.

The five main chapters of this work are devoted, says the author, to the discussion of "the problem of direct instruction in morality". "On the practical solution of this problem," Mrs. Bryant adds, "in each case depends the efficiency of all lessons—regular or incidental—that may be given on life and conduct" (p. 29). Chapter i. treats of "the intellectual processes involved in the study of morality,"—these seem to be activity of the logical and of the imaginative faculties which show present conduct in the light of future consequences. The practice of life must mainly depend upon the ideal of life which Mrs. Bryant denominates "conscience" (p. 61). Chapter ii. is entitled "The Moralising Instincts Developed by the Study of Morality". Moralising instincts are those instincts, our author explains, "that are in general serviceable to the moral ideal". They may be divided "into two groups—the personal and the social" (p. 68). The personal are comprised under the feeling termed self-respect, and the social tendencies take the form of sympathy, which Mrs. Bryant thinks is chiefly evoked through the imagination.

Chapter iii. sets forth the "Principles of Teaching". "The teacher," says the author, "is bound to inquire (1) what are the conditions fulfilled when a new idea is taken in? and (2) in what ways may the fulfilment of the conditions fail?" Throughout this chapter much stress is laid upon the inculcation of moral lessons by reflexion on some inspiring romance and bringing it to bear on every-day problems, which have interest for all normal minds. We commend the method and call particular attention to the author's remarks on the style and manner of good story-telling. Chapters iv. and v. deal with the aims and objects of moral teaching—(1) *Virtuous Character* and (2) *Social Membership*. Heroism tempered by amiability seems to form the ideal character portrayed in these pages,—unity of purpose and steadfastness of will are the elements of the *first*; while a wide sympathy and universal charity constitute the *second*. Very good is the habit much inculcated of honest self-criticism—"it is harder to own oneself wrong than even to forgive an injury" (p. 128). Altogether, this work is a sound practical contribution to the theory of moral education, the outcome of which should be a good man—and a good citizen.

T. W. LEVIN.

Dynamic Sociology, or Applied Social Science, as Based upon Statical Sociology and the less Complex Sciences. By LESTER F. WARD. Vol. i., pp. xxix., 706; vol. ii., pp. vii., 653. Second edition. New York: D. Appleton & Co., 1897.

Dynamic Sociology is the art of improving society; happiness is its end; and its means is the universal diffusion of scientific information. The first volume traces the development of human society from an originally homogeneous matter which suffers primary aggregation in cosmogony, secondary aggregation in biogeny, psychogeny and anthropogeny, and tertiary aggregation in sociogeny. The second volume works back from the end of happiness through a chain of means—progress, dynamic action, dynamic opinion, knowledge—to education.

In developing the main thesis of his work, the author abstracts to the last degree from man's practical nature. The social unit is a centre of more or less information; truth is a large number of facts and generalisations which it is the business of education to impart. In so far as education leaves this task in order even to 'develop the intellect' it forsakes its proper function and is lost labour. The author does not show how the diffusion of abstract information is to be adequate to the realisation of a more perfect society; but he is convinced of its paramount importance, and seems to regard his theory as almost self-evident. He says, for instance, that 'the complete ignorance of so-called cultivated people as to the nature of cells in biology and of the fact that they have each been evolved from a simple cell, shuts them off from a knowledge of the most important truth of their existence'. This sentence is quite typical of Mr. Ward's whole point of view, which confuses importance within special sciences with importance in relation to conduct.

G. SANDEMAN.

Pseudo-philosophy at the end of the Nineteenth Century. By H. M. CECIL. I. *An Irrationalist Trio*: Kidd, Drummond, Balfour. London: The University Press, Limited, 1897. Pp. xvi., 308.

This, the first volume of Mr. Cecil's *Pseudo-philosophy*, is an elaborate castigation of the authors of *Social Evolution* (MIND, Oct., 1894), *The Foundations of Belief* (MIND, July, 1895) and *The Ascent of Man*. The writer lashes his irrationalist trio very much as Mr. J. M. Robertson in a recent work lashed the critics of Thomas Buckle. His position and purpose are frankly avowed: "the primary object of this volume is the refutation of the fallacies and errors contained in three books . . . which at the time of their publication caused a literary sensation . . . without stirring the scientific world. . . . The state of the intellectual world in which such works can command an enormous sale . . . serves to enforce the lesson . . . that the conflict between science and religion, between rationalism and irrationalism, is by no means a thing of the past. . . . There can be no truce between the rationalist and the irrationalist."

It is not quite easy to see what kind of public Mr. Cecil expects to reach by his criticism. His book is too bulky, and too little independent of the books it attacks, to form palatable reading for the average educated man; while the philosophers *von Fach* will have passed their own criticism upon the 'trio'. Moreover, the doctrines so repellent to Mr. Cecil are notoriously such as appeal to bias and temperament; no amount of argument on either side will decide a man for or against them. On the other hand, the author is fully entitled to print his protest, if he will; and there is a tickle of suggestion in the bracketing of the three names

on the title-page which may tempt readers. It must be said, too, that the writer, if he has caught Mr. Robertson's spirit, has also caught something of his charm of style. Polemical from end to end, his book is distinctly entertaining to those who know its originals.

Hypnotism and its Application to Practical Medicine. By O. G. WETTERSTRAND. Translated from the German edition by H. G. PETERSEN.

Medical Letters on Hypno-suggestion. By H. G. PETERSEN. London and New York: G. P. Putnam's Sons, 1897. Pp. xvii., 117 + 48.

Dr. Wetterstrand is a follower of Liébeault, and therefore a member of the 'school' which includes Bernheim, Forel, etc. His book, which has already appeared in Swedish, German and Russian, consists of reports of cases in which he has employed hypnosis for therapeutic purposes, together with a brief introduction on the hypnotic state and an equally brief conclusion on the value of suggestive therapeutics in general. Its empirical and non-speculative character makes it a welcome and important contribution to hypnotic literature. The translation is accurate and readable.

Dr. Petersen, an enthusiastic adherent of the Nancy doctrines, writes sensibly on practical questions, but shows little grasp of his subject when he ventures on the ground of psychology and metaphysics. His *Letters* deal with the practical teachings of the use of psychology in medicine, with suggestive treatment in reform work, with post-hypnotic responsibility and with the question of music *v.* sermons for the insane.

A History of Elementary Mathematics: with Hints on Methods of Teaching. By F. CAJORI. New York and London: The Macmillan Co., 1896. Pp. viii., 304.

This book has a two-fold value for the psychologist. The history of any science, rightly told, constitutes a piece of social psychology; and mathematics has a special claim upon the psychological attention, in virtue of its unique position among the sciences. Prof. Cajori's work, however, has more than this general value. By its wealth of clearly worded illustration it gives us many glimpses of the way in which the human mind actually set about its task in the first days of mathematical thinking. If the reader is unfamiliar with the treatment of fractions in the Ahmes papyrus, let him procure this *History* and he will receive his reward.

Prof. Cajori is already favourably known by his larger *History of Mathematics* (1895). The present volume, which gives many references to the sources and is furnished with a good index, has been well received by the technical journals; so that the layman may read with faith. The book opens with a brief discussion of number-systems and numerals; and thereafter falls into three parts, dealing with the arithmetic, algebra, trigonometry and geometry of antiquity, the middle ages and modern times respectively.

Ethics of J. S. Mill; edited with Introductory Essays. By CHARLES DOUGLAS, M.A., D.Sc., Lecturer and Assistant in Moral Philosophy in the University of Edinburgh. Edinburgh and London: William Blackwood & Sons, 1897. Pp. cxxvi., 238.

The general scope of this work is well indicated in the Preface. "It has been very usual for students to confine their reading of Mill's ethics to

his 'Utilitarianism'; and this book is, of course, his principal exposition of his ethical opinions; but I think it unfortunate that the theory of morality which is conveyed in it should be divorced from the conception of the method of ethical science by which Mill's work as a moralist is determined; and I have therefore prefaced the 'Utilitarianism' by the chapters from his 'System of Logic' in which that conception is chiefly set forth. It has also seemed desirable to give an opportunity of supplementing the knowledge of Mill's ethics which is to be gained from a study of these chapters, and of 'Utilitarianism,' by quoting, as footnotes and appendices, passages from his other writings, which corroborate, supplement, or correct the statements of the text. It is hoped that in this way a reasonably complete account of Mill's ethical theory is presented." The work as a whole is extremely well done, and will be found very useful to students. The Introductory Essays give a clear and judicious account of Mill's general ethical position, bringing out both his strong points and his deficiencies.

G. F. S.

Man's Place in the Cosmos; and other Essays. By ANDREW SETH, LL.D., Professor of Logic and Metaphysics in the University of Edinburgh. Edinburgh and London: Blackwood & Sons. Pp. viii., 308.

The volume before us consists of essays and addresses all of which have already been published. The essay which gives its title to the volume is a criticism of Professor Huxley's Romanes Lecture on *Evolution and Ethics*. Other essays deal with Münsterberg's *Psychology*, with Mr. Bradley's *Appearance and Reality*, and with Mr. Balfour's *Foundations of Belief*. Varied as the topics are, the breadth of Mr. Seth's treatment of them, and his persistent interest in the way of thinking which he describes as "humanism" or "ethicism," give to the contents of this volume a degree of unity which is sometimes lacking in more apparently systematic treatises. Critical notice will follow.

CHARLES DOUGLAS.

Grains of Sense. By V. WELBY. London: J. M. Dent & Co., 1897. Pp. xi., 146.

This little book consists of a collection of aphorisms and parables, all tending to enforce the same truth: that we are not careful in our use of language to say and understand precisely what is *meant*, but translate our assimilations into words at haphazard, content if a part of the meaning is conveyed and grasped. That the indictment is well grounded cannot be doubted, when we find a man like Preyer saying that the use of fundamental physical concepts strikes him as largely 'Modesache'; when we remember the different meaning that words like 'physiology' and 'psychology' carry to students trained at different universities; and when we see the wholesale charges of 'misunderstanding' bandied in scientific controversies. The book will do good service if it brings home to its readers the fact that meanings develop, as well as word-forms, and the corollary that we should give account to ourselves of our own and our interlocutor's mental parentage before we enter on a discussion of anything.

The Evolution of the Art of Music. By C. H. H. PARRY. Intern. Scient. Series, vol. lxxvi. New York: D. Appleton & Co., 1896. Pp. x., 342.

In 1893 Dr. Parry published a work entitled *The Art of Music*, which is here reprinted (with an additional Note) under a more appropriate name

and in cheaper form. The importance of the book, and of the first four chapters especially, for ethnic psychology is very great; the discussions are sound and cautious, and the illustrations well chosen. The work should take its place in a psychological library beside Cajori's shorter *History of Mathematics*, and Mach's *History of Mechanics*.

A parallel volume is promised, to consist "almost entirely of musical excerpts . . . so arranged as to show the continuous process of the development of the musical art".

Matière et Mémoire : Essai sur la relation du corps à l'esprit. Par HENRI BERGSON, Docteur ès Lettres, Professeur de Philosophie au Lycée Henri IV. Paris: Félix Alcan, 1896. 8vo, pp. iii., 280.

This extremely able and interesting essay is a metaphysical study, which has, as M. Bergson tells us, grown out of a piece of psychological analysis, placed now in the course of the exposition in chapter iii. It maintains an extreme dualism of mind and body, only in order in the end to indicate a continuity between them. The meeting place is found in perception, in which two disparate elements are distinguished, one 'pure perception,' the other memory. Two propositions are laid down which, so far as we can judge from the difficult and over-figurative exposition, form the basis of the whole: the first is that being perceived differs from real existence only in degree not in kind (p. 25), the second that memory in the strict sense differs from perception in kind and is not a function of the brain at all. The author believes that the difficulties of idealism and materialism alike arise from giving to perception (*i.e.*, pure perception) a merely cognitive instead of a practical position. All things being described as 'images' (equivalent we suppose to 'ideas' in Locke's sense), representation arises in the particular 'image' called a body or brain through the selection by the brain of those aspects of a thing which interest it in its reactions upon the world of which the brain forms a part. Matter being the totality of images, perception of matter is the same images referred to the possible action of a determinate image—my body. Perception is thus a selection of images, a selection which depends upon what the author terms the 'indétermination du vouloir'. Consequently objects are perceived not in me (as idealism holds), but where they are in themselves. Perception is in fact a response of the body to other bodies, though it may readily be understood that this view implies certain relations between the movements amongst the particles of things and sensible qualities, to be afterwards explained.

Memory, on the other hand, which is, as a matter of fact, always found as an element in ordinary perception, is itself entirely independent of matter. Under memory we distinguish that form which is really mental habit (like memory of a language), and which takes effect in motor dispositions, from memories in the proper sense which we 'dream' rather than 'play' or perform. These latter memories are altogether independent of the brain, and it is urged that there are no memory centres. The brain is but a contrivance for transferring motions from the outside into motions towards the outside. Yet these memories have become attached to perceptions through the movements accompanying perception. On this depends recognition, in which a pure memory becomes thus materialised into a memory-image ('image-souvenir') by its utilising the motor processes which make up the functions of the brain. The author believes this to be borne out by the study of psychic blindness, on which he has some good remarks. There are thus (and this is the main psychological thesis) stages in the mind, the extreme stages being

composed of pure memories on the one hand, and perceptions, coloured by memory in its form of habit taking effect in movements, on the other. These stages are represented as different layers, but this is probably to be understood figuratively. Apart from the artificial conception of the soul, and from some questionable neurology, there is much good psychological analysis, which is indeed familiar in principle in England from the recent criticisms of associationist writers, but is presented here in an individual form (reminding the reader of Prof. Baldwin) through M. Bergson's insistence on the motor character of perception, and on the motor element involved in recognition.

Perception then, not pure, but in its familiar form, is a junction of two processes: the one working from the soul downwards, from memory to movement; the other upwards, from the external object to the finite centre which is the brain. The author then proceeds to show how the two apparent disparates, matter and mind, can thus meet by resolving the chief oppositions of the extended and the unextended, the quantitative and the qualitative, the free and the necessary. As to the first he maintains that matter is divided into pieces only for practical purposes, being in fact continuous, that both perception and matter are 'extensive,' while the space or extension which in thought belongs to matter as distinguished from mind is but a 'schema' which represents its practical divisibility. The quality of sensations as distinguished from the quantitative character of the movements of bodies he supposes to be due to the contraction produced by memory—every sensation containing the memory of the immediately preceding vibrations, and several millions of vibrations (as in light) being contracted into a second, whereas to perceive each separately would require years. Sensible qualities and quantitative movements differ thus in respect of 'tension,' and the author declares that the difference of body and mind is thus to be expressed in terms of time rather than of space. The meaning of liberty (so far as it can be made out from this work) has already been indicated in connexion with the selection produced by the organism in perception.

There is much to be learnt from M. Bergson's book. But there are some great difficulties left unresolved. (1) Perception which is said to select images may distort them—all the difficulties of the Kantian criticism are suggested thereby and they need notice. (2) The assumption of a peculiar memory which is aware of the past as such (with this may be compared Mr. L. T. Hobhouse's chapter on the subject) and which has no physiological substrate. The conception of the faculty itself offers difficulties enough, and the pathological evidence is surely quite insufficient. Even if there is no loss of images in psychic blindness (as the author contends) there may be loss of communication between image and perception. (3) Things are described as images; whose images are they? If only the observer's, why deny the sensorial character of the brain on the ground that the brain being itself an image cannot have images? Such an image might still have imagination. If things are images in the sense of psychic existences, the assumption is a very large one. Nor do we understand M. Bergson to say this; but the difficulty of the alternative remains.

S. ALEXANDER.

La Logique de Hegel. Par GEORGES NOËL. Professeur de Philosophie au Lycée Lakanal. Paris: Félix Alcan, 1897. Pp. viii., 188.

Mr. Noël's book forms a most admirable introduction to the study of Hegel. He has grasped the great truth, which so many commentators ignore, that Hegel produced something which he asserted to be a demonstrated

and coherent system, and that the main point in any thorough criticism of his teaching must be to inquire, not whether it is genial, or suggestive, or inspiring, but whether it has been proved to be true. From this it follows that it is impossible to make any serious study of Hegel without mastering the *Logic*. The *Phenomenologie* is nothing but an introduction, the other works are only applications. On the validity of the *Logic* everything depends.

It is not, however, the beginner only who will find this book valuable. It would be impossible for any one, however well acquainted with Hegel's own works, to read it without gaining new light on the system as a whole, and, in a still greater degree, on the details of the *Logic*.

The first chapter is devoted to a general account of the dialectic method. Here Mr. Noël strikes, we think, the right note at the beginning by pointing out that the method is by no means so mysterious and unparalleled as has been asserted. "Le système de Hegel n'est que celui de Kant débarrassé de ses conséquences" (p. 5). Nor does it reject the principle of contradiction. "Si en effet l'esprit ne répugnait à la contradiction, s'il pouvait y demeurer et s'y complaire, le procès dialectique s'arrêterait de lui-même ou pour mieux dire il ne saurait commencer. Est-il en effet autre chose que l'effort continu de l'esprit pour s'affranchir de la contradiction?" (p. 15).

The general view taken by Mr. Noël of the validity of the dialectic agrees with that taken by Mr. Bradley in his *Logic*—that the motive force of the process lies, not in the beginning, but in the synthesis which forms the end. Thus he says, "Loin de faire de l'abstrait le principe du concret, il s'attache obstinément à montrer que celui-là ne se comprend que par celui-ci" (p. 11). And again, "Si la contradiction nous y amène et nous la fait découvrir, ce n'est pas elle qui la produit. Elle préexistait en nous à l'aperception de la contradiction et c'est sa présence qui, quoique non remarquée, nous permis de poser la thèse et l'antithèse ainsi que leur rapport" (p. 16).

On these principles he finds no difficulty when, in chapter v. ("La Logique dans le Système"), he comes to deal with the transition from *Logic* to *Nature* which Prof. Seth finds so fallacious. "Prise dans son ensemble, la Logique soutient avec l'extra-logique un rapport analogue à celui qu'en son sein chaque catégorie soutient avec la suivante. Elle est un moment de l'Idée dont la Nature et l'Esprit sont les moments ultérieurs" (p. 117). This is followed by a careful discussion of the most perplexing feature in the transition—the emphasis which Hegel lays on the *freedom* of the passage to *Nature* (p. 124).

In chapters ii., iii. and iv., the three books of the *Logic* are discussed in detail. The Greater *Logic* is followed, where it differs from the *Logic* of the *Encyclopædia*. This course is obviously the most convenient for French students, since the Greater *Logic* has been translated into French, while the Smaller has not. And it must be admitted that the alterations which Hegel made in the argument when he composed the shorter version are scarcely improvements. On the other hand, the Smaller *Logic* presumably gives us Hegel's final view of the system.

These three chapters are in some respects the most valuable part of the book, but it is of course impossible to give any idea of their merits by extracts. A good example of Mr. Noël's clear and thoughtful exposition may be formed in his treatment of the very difficult transition from *Werden* to *Dasein* (p. 25).

The seventh chapter is entitled "Le Dogmatisme de Hegel". The author has no difficulty in showing that Hegelianism bears no very close relation to Spinozism. He then goes on to suggest that, of all the

philosophers of the seventeenth century, Leibniz most closely resembles Hegel (p. 141). This is a significant and profound remark. It is to be regretted that it was not developed at greater length. It would involve the whole question of Hegel's treatment of the individual. We should perhaps have to distinguish between the recognition of the individual which Hegel ought to have yielded, on his own premises, and the disparagement of the individual which may not infrequently be found in his applications of his system.

The discussion of Hegel's pantheism which follows is perhaps scarcely exhaustive. No doubt Hegel's God is neither an unrealised ideal nor a blind necessity. But the further question still remains whether he is a society or a person. Both the Logic and the Philosophy of Religion give some grounds for supposing that he—or rather it—must be conceived as a society, and in that case Pantheist might perhaps be the least inappropriate label for Hegel's theological position.

The book closes with a discussion of the relation of Hegel to contemporary thought. It is devoted mainly to the consideration of objections raised by positivists and neo-critics. It is natural that every writer should give most attention to the criticisms which come from his own country, but it would have been very interesting and useful if Mr. Noël had seen his way to include Lotze and Mr. Bradley among the philosophers he discusses. They both stand much nearer to Hegel than Comte or Mr. Renouvier, and, for that very reason, their differences from Hegel are more significant. They require careful and thorough treatment from a Hegelian standpoint, which no one would be better qualified to give than Mr. Noël, if he feels inclined to increase the debt which all students of Hegel already owe him for his brilliant and scholarly work.

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IX.—PHILOSOPHICAL PERIODICALS.

PHILOSOPHICAL REVIEW. Vol. vi., No. 2. **S. S. Laurie.** 'The Metaphysics of T. H. Green.' [Green's general conclusion is that "the universal mind which unifies the manifold we call the world into a related whole, finds, or rather effects, a self-realisation of itself in finite minds, which thus are competent to unify the manifold of sense into a related whole". Objections are: (1) it is a hypothesis; (2) a unifying principle of relations need not be a self-consciousness; (3) Green's analysis of the nature, process and necessities of finite mind is untrue; (4) his notion of God is inadequate to the demands of the human mind; (5) self-existing and free finite selves are incompatible with the system.]

E. Albee. 'Gay's Ethical System.' ["The whole outline of Utilitarianism, in its first complete and unencumbered form, is to be found in Gay's Preliminary Dissertation."] **E. S. Haldane.** 'Jacob Boehme and His Relation to Hegel.' [Critical sketch of Boehme's philosophy, showing the points of resemblance between his thought and that of Hegel. Not a strong paper.] **J. E. Creighton.** 'Is the Transcendental Ego an Unmeaning Conception?' ["Our experience as it actually exists seems to give us as its correlate a variously coloured and multiple self" (psychological standpoint). The argument to a judging thought or transcendental ego, as distinct from thoughts and judgments, is based on the demand for unity which experience implicitly contains.] Discussions.

A. Liano. 'Agnosticism and Disguised Materialism.' [There is no essential or fundamental difference between Bain and Spencer on the one hand and Buchner on the other.] Reviews of Books. Summaries of Articles. Notices of New Books. Notes.

Vol. vi., No. 3. **J. M. Baldwin.** 'The Genesis of the Ethical Self.' [The child has two selves: the habitual, stable self, and the capricious, learning, accommodating self. One school of moralists derives the ethical sentiment from the former, from habit or custom; another from the latter, from sympathy. Both are wrong. The child gets to the 'ought' by way of a third self, shaped by obedience and taking the form of a law-giving personality.] **D. Irons.** 'The Nature of Emotion.'

[Emotion is "not merely unanalysable, but also irreducible, and must therefore be regarded as an ultimate and primary aspect of mind".]

H. M. Stanley. 'An Analysis of the Good.' [The good is based subjectively on evil, arising from ancestral pain: it also exists objectively by evil, my good being another's harm. Moreover, though good unrealised is bad, good is lost in the realisation. Hence men search for a metempirical, stable good: unsuccessfully. "The perfection of organism is humanity self-consciously organised for the development of experience. In this alone will human good be fully realised."]

M. Washburn. 'The Process of Recognition.' [The consciousness of familiarity is "an unanalysable bit of conscious content".] **J. Seth.** 'The Standpoint and Method of Ethics.' [Judgments are of fact or value: hence there

are natural and normative sciences. As the former, ethics discovers the causation of morality; as the latter, its meaning. In both forms it is to be distinguished from the metaphysics of ethics. Illustrations (egoism and altruism, moral obligation); cautions (all scientific method the same; normative science does not transcend common sense).] Reviews of Books. Summaries of Articles. Notices of New Books. Notes.

PSYCHOLOGICAL REVIEW. Vol. iv., No. 2. **L. Farrand**. 'Proceedings of the Fifth Annual Meeting of the American Psychological Association.' **J. H. Hyslop**. 'Upright Vision.' [Touch associations must be excluded. The eye movement theory is thus ruled out. We may accept a form of the projection theory, very like Le Conte's, except that the line of reference must be understood simply as a perpendicular to the sensing surface.] **A. H. Lloyd**. 'The Stages of Knowledge.' [Sensation as stimulus or undifferentiated continuum is rather the lower limit than the first stage of knowledge. The law of knowledge is the identity of internal motive and external stimulus. Knowledge is thus part of and means to active self-expression. It begins with positive sensation, obedient to the law of relativity; and since self-expression is action, and action means control, spontaneity, and tension of the two (consciousness), that law becomes a law of objectivity, a principle of control, or (from the other side) a law of organic activity. Sensation rises to perception, "a process by which the past may be said to move over into the object and to abide there as an important phase of the present". "The percept is not-self, but also the incarnate self." The self acting fluently in language enters the world of conception. The alleged fourth stage of knowledge, intuition, is again a limiting value: not self-expression, but the vital impulse thereto fully mediated in an act.] Discussion and Reports. **G. T. Ladd**. 'The President's Address.' [Critique of Fullerton.] **G. M. Stratton**. 'Upright Vision and the Retinal Image.' [Reply to Hyslop.] **N. Wilde**. 'The Originality of Æsthetic Feeling.' [Appreciation of Grosse.] Psychological Literature. New Books. Notes.

Vol. iv., No. 3. **A. T. Ormond**. 'The Negative in Logic.' [In face of environment the primitive conscious organism experiences pulses of self-assertion. These are volitions, and are the central essence of judgment. Existential judgment implies the pulse *plus* an interesting representation; relational implies the existential universe *plus* competing alternatives within it. The judgment in general is derivative from prelogical (psychological) experience.—In an existential judgment the 'real' subject asserts itself, *pro* the compatible (affirmative), *contra* the incompatible (negative). Similarly in relational judgments: the 'real' subject is genus or universal within which affirmation or negation falls. Hence negation is not mediated by affirmation; the two are co-ordinate (Aristotle). The progress of the 'real' subject, however, is direct through the latter, indirect through the former. By function, negation simply removes; though by implication it may be something positive.—Critique of Benno Erdmann.] **W. James**. 'Contributions from the Harvard Psychological Laboratory.' I. **L. M. Solomons**. 'Discrimination in Cutaneous Sensations.' [Judgments of twoness are due to simple association between the sensations from the two points and the idea of two points; they do not necessarily vary with judgments of position, distance, area, etc.] II. **E. A. Singer**. 'Studies in Sensation and Judgment. (a) Differentiation of Sense Organs.' [Discreteness of end-organs of touch and cutaneous pain; Goldscheider's work on temperature is generally reproducible.] (b) 'Intensity.' [Two blows, of different intensity, excite the knee-jerk: length of kick is available as secondary criterion of intensity. Two hypotheses: either direct association of

jerk and intensity; or the group of muscle-sensations attending adaptation or reaction to stimulus is an immediate element of the intensity-idea.] (c) 'Judgment.' [Experiments on preperception. S. d. varies inversely with the number of possibilities of judgment presented (cf. reaction-time results). Experiments on general and specific judgments. By an ingenious method (worthy of further testing) the percentage of 'pure general judgments of difference' is determined: in three series it was 11.3, 7.7, 14.5. 'Noticeableness' and 'difference,' it is concluded, are both terms of various meanings. But this fact is generally recognised; and the author's final words—"The problem of psychophysics awaits a restatement"—are therefore misleading.] **S. Baker.** 'The Identification of the Self.' [There are two opposed theories; the associative or automatic, and the conative or volitional. The latter is preferable: introspection shows a feeling of effort, conscious energising. And the process of energising "actually calls up the characteristics of the past-self, and imitates them". This present mimicry of self, the devotion of the self to a self-set copy, constitutes the process or fact of self-identity, and is recognisable as such. Take, e.g., the identity of self during pain. "In the presence of pain expectantly developed, I as a self actually endeavour to reproduce all the concomitance previously associated with pain of every sort; and myself is best satisfied when this is accomplished most accurately and fully." Shorter Contributions.] **G. R. Stetson.** 'Some Memory Tests of Whites and Blacks.' [Verses were read to blacks (av. age 12.57) and whites (av. age 11). Memory rank: blacks, 58.27 per cent.; whites, 58.09 per cent. Study rank: blacks, 64.73 per cent.; whites, 74.32 per cent.] **C. J. Hawkins.** 'Experiments on Memory Types.' [Rough experiments on school-children, and commercial and college students. For auditory memory, one reading is better than two, and three than one. For young pupils, successive visual memory is better than simultaneous; for older persons, the reverse holds. For young pupils, auditory memory is better than visual; for older, the reverse is true.] **C. L. Herrick.** 'The Propagation of Memories.' [Since cortical cells die, there can be no persistence of an actual physical memory-basis. Memory is continuous in virtue of "the totality of the inter-related [cortical] activities or the associational equilibrium".] **L. Farrand, J. McK. Cattell, and J. M. Baldwin.** 'Note on Reaction Types.' [Rosenthal has a longer muscular than sensorial reaction (7+4+7 experiments; no previous practice). Sieveking gives a normal muscular reaction (5 experiments; no practice) and cannot react sensorially at all. Neither subject was directed beforehand as to concentration of the attention. This experimental material is interpreted by Cattell and Baldwin, each in terms of his own theory.] *Psychological Literature. New Books. Notes.*

THE PSYCHOLOGICAL INDEX, No. 3. A Bibliography of the Literature of Psychology and Cognate Subjects for 1896. Compiled by **H. C. Warren** and **L. Farrand**, with the co-operation of **B. Borchardt** and **N. Vashide**. [Published in April, 1897; 2234 titles. The bulk of the work has fallen to Messrs. Warren and Farrand; but the Index has been made more complete than in previous years by the co-operation of the *Zeitschr. f. Psych.* and the *Année psychologique*. In future all three bibliographies will be practically the same; though the *Zeitschr.* list, coming last, will presumably be the most complete.]

MONOGRAPH SUPPLEMENT, No. 4. Jan., 1897. **E. F. Buchner.** 'A Study of Kant's Psychology, with Reference to the Critical Philosophy.' [An elaborate monograph, pp. viii., 208. Notice will follow.]

AMERICAN JOURNAL OF PSYCHOLOGY. Vol. viii., No. 3. **W. B. Pillsbury.** 'The Reading of Words: a Study in Apperception.' [An elaborate investigation of the processes involved in the reading of words flashed upon a screen. Value of letters, by form and position; value of letters shown by disfigurement; value of length and form of word as suggesting a word. Association between letters; association of word to total impression; value of preceding suggestion, preceding word of series, succession of exposures of same word, preceding work of hour or day, general disposition, knowledge of method. Struggle between peripheral and central factors in recognition. Special value of total word suggestion. Analysis of Wundt's scheme of intellectual classification; criticism.] Minor Studies from the Psychological Laboratory of Stanford University. Communicated by **F. Angell**. I. **M. A. Tucker.** 'Comparative Observations on the Involuntary Movements of Adults and Children.' [Hands and arms resting before the body tend to move inward, towards the median plane. When we see an object we do not necessarily tend to move towards it. Involuntary movement may be directed by vision, presented or represented. Children show no sex or age differences: they are governed by the same laws as adults.] Minor Studies from the Psychological Laboratory of Cornell University. Communicated by **E. B. Titchener**. XII. 'A Study of Certain Methods of Distracting the Attention.' I. **F. E. Moyer.** 'Addition and Cognate Exercises: Discrimination of Odours.' [A distraction must be continuous, capable of gradation, and uniformly applicable. Addition, writing words of a sentence backwards, spelling words backwards, and even translating into another language and then writing backwards, do not fulfil these conditions. Odour series offer some prospect of success.] XIII. **E. B. Talbot.** 'An Attempt to Train the Visual Memory.' [Experiments by two forms of the methods of reproduction. Good results.] Psychological Literature. Notes and News.

REVUE PHILOSOPHIQUE. April, 1897. **F. Le Dantec.** 'Pourquoi l'on devient vieux (1^{er} art.).' [The growing old of unicellular organisms and of plants.] **F. Pillon.** 'La philosophie de Secrétan.—II. Morale.' [Doctrine of conscience as the will of God working in us who, as being His creatures, are consubstantial with Him. Solidarity of the race as the motive of charity, the fundamental virtue.] **J. Soury.** 'La thermométrie cérébrale.' [Account of Mosso's recent researches, which are held to confirm current views.] **L. Dugas.** 'Le Sommeil et la célébration inconsciente.' **A. Fouillée.** 'Comte et Kant.' Analyses et comptes rendus, etc.

May, 1897. **Mouret.** 'La Notion mathématique de Quantité.' [Quantity is whatever can become part of a sum or be considered as sum of parts. This definition is introduced and justified by a previous analysis of the nature of addition and subtraction.] **F. Le Dantec.** 'Pourquoi l'on devient vieux (2^{er} art.).' [Old age in animals and man. Due to the accumulation of solid or "skeletal" bye-products of vital process.] **J. Philippe.** 'Sur les transformations de nos Images mentales.' [Experimental. The subject is given an object to handle. Without seeing it he then draws a copy of the visual image which it calls up. He is afterwards called, after the lapse of some days, to draw a copy of the image as he then retains it. Three kinds of transformation occur. The image either tends to disappear or becomes more precise, though altered in form, or approximates to the general type of the class to which the object belongs.] **Ch. Féré.** 'Les perversions sexuelles chez les animaux.' Notes et documents. Analyses et comptes rendus, etc.

June, 1897. **Maldidier.** 'Étude sur la Hasard.' ["Le Hasard est une interférence quelquefois singulière, ordinairement imprévisible en raison de la complexité de ses facteurs ou du trop grand nombre et de la variabilité des influences perturbatrices auxquelles ils sont exposés, en tous cas non intentionnelle et relativement contingente, quoique nécessaire en soi à un moment donné et dans des circonstances données, entre deux ou plusieurs séries causales réciproquement et relativement indépendantes."] The article abounds in acute observations and criticisms.] **F. Pillon.** 'La philosophie de Secrétan.—III. Observations historiques et critiques.' [Criticises the theory of liberty as self-causation. Shows that this doctrine was not held by Descartes as Secrétan supposes.] Notes et documents. Analyses et comptes rendus, etc.

REVUE DE MÉTAPHYSIQUE ET DE MORALE. 5^e Année, No. 3. May, 1897. **Delbœuf.** 'Notes sur la mécanique.' [A paper on the metaphysical aspects of the fundamental ideas of physics.] **J.-J. Gourd.** 'Les trois dialectiques. *La dialectique religieuse.*' [Religious dialectic has an *object*, but not a *domain*, proper to itself. Theory has the 'given world' for its domain; practice has the world which gives, *i.e.*, the *presentative*, as distinguished from the *presented*, world. What then can remain for religious dialectic? This question is treated at the beginning of the article, which proceeds through the discussion of several aspects of theology to the establishment of a "new point of departure".] **G. Remacle.** 'Recherche d'une méthode en psychologie (*suite*).' [Continuation of a former paper, for which see *R. de M. et M.*, 1896, pp. 129-59.] **A. Spir.** 'Nouvelles esquisses de philosophie critique (fin). Essai sur les fondements de la religion et de la morale.' [The main subject of this paper is the immortality of the soul: and its conclusion is that personal immortality is a chimera, as little desirable as credible, and not only inconsistent with probability but incompatible with genuine morality and religion.] Études critiques, etc.

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Bd. xiii., Heft 1 und 2. **J. Friedrich.** 'Untersuchungen ueber die Einflüsse der Arbeitsdauer und der Arbeitspausen auf die geistige Leistungsfähigkeit der Schulkinder.' [A valuable paper: too detailed for anything but the briefest summary. Increase of work time is paralleled by decrease of work quality. Extent is to be replaced by intensity: pauses should come after every period; we must decide whether the hour is not too large an unit; heavy work must come first in the day; afternoon work either to be given up entirely, or confined to easy topics.] **K. Ueberhorst.** 'Eine neue Theorie der Gesichtswahrnehmung.' [Perception is the product of a specific mental activity, whereby a peripheral sensation is combined with an existing sensation to a peculiar unity: the two sensations being apprehended by an unconscious intelligence as symbolising the same object.] **J. M. Vold.** 'Einige Experimente ueber Gesichtsbilder im Traum.' [Experimental questionnaire. Just before waking the visual apparatus takes on, in a certain measure, the state in which it was just before the subject fell asleep.] **M. Meyer.** 'Ueber die Rauhigkeit tiefer Toene.' [Low tones are not themselves discontinuous: their seeming discontinuity proceeds from concomitant noises.] Litteraturbericht.

Bd. xiii., Heft 3. **F. Bezold.** 'Demonstration einer kontinuierlichen Tonreihe zum Nachweis von Gehoerdefekten, insbesondere bei Taubstummen, und die Bedeutung ihres Nachweises fuer die Helmholtzsche Theorie.' [The range of audition (11 to 55,000 v.d. in the 1 sec.) is covered by eleven tuning forks and three piston whistles. Gaps in the

deaf-mute tone scale tell for Helmholtz, though confirmation by autopsy is desirable.] **T. Heller.** 'Ueber Aphasie bei Idioten und Imbecillen.' [Idiots and imbeciles cannot be classified by defects of speech: attention must be the basis of classification. There are two sorts of defects of speech: those which come from, and correspond to, the general defect of intelligence; and those which are really aphatic.] **Guillery.** 'Weitere Untersuchungen ueber den Lichtsinn.' [(1) Grey on white can be seen by a single retinal element when the photometric relations are 1:1.15; grey on black when they are 3.17:1. (2) The retinal distribution of the brightness elements for daylight is different from that of the brightness elements for adaptation to dark. The former are perhaps the rods, the latter the cones.] *Litteraturbericht.*

Bd. xiii., Heft 4 und 5. **J. von Kries.** 'Ueber Farbensysteme.' [A very clear and comprehensive paper. The writer finds a trichromatic system, shown in the equations (determined with the eye adapted for light, not for darkness) of the great majority of those endowed with normal colour vision; and two typically different dichromatic systems, deducible from it by reduction (subtraction of one colour component), and represented by the light-equations of the two forms of partial colour-blindness. Beside these, and standing in no determinable relation to them, is the monochromatic system of congenital total colour-blindness, which is identical with the colour system of trichromates and dichromates in twilight-vision. These results are brought into connexion with the author's general theory of vision.] **L. W. Stern.** 'Psychische Praesenzzeit.' [The different processes contained in a given time-period may constitute a unitary 'act of consciousness,' despite their temporal dissociation. Present time, in direct time perception, is a brief time-period. Times can be 'projected' in reduced scale into the present time (*cf.* dreams). In 'primary' memory we experience immediately, perceive, the identity of impression and image; in true memory we infer it. The conscious present has a special most favourable or 'optimal' duration for every special contents.] *Litteraturbericht.*

Bd. xiii., Heft 6. **H. Ebbinghaus.** 'Ueber eine neue Methode zur Pruefung geistiger Faehigkeiten und ihre Anwendung bei Schulkindern.' [Methods previously employed are those of 'calculation' (simple additions and multiplications) and 'memory' (writing out of words heard). The new method is the method of 'combination'. A printed text is mutilated, the length of the omitted syllables and words being roughly indicated by lines; and the child is required to fill out the gaps as quickly as possible, keeping the sense of the passage in view.] **T. Elenhans.** 'Nachtrag zu Ebbinghaus' Kombinationsmethode.' [Proposes to combine the memory method with that of Ebbinghaus, by having the un mutilated text read aloud before the filling out of the mutilated pages is begun.] **Breuer.** 'Ueber den Einfluss des Maculapigments auf Farbengleichungen.' [Comparison of macular and extramacular (central and paracentral) colour equations, undertaken at von Kries' suggestion. Absorption-values increase with decreasing wave-length. The living fovea is pigmented. As the absorption-values are not very considerable, it is improbable that individual differences are of any great moment.] **G. Heymans.** 'Erwiderung.' [Reply to Titchener.] *Litteraturbericht.*

PHILOSOPHISCHE STUDIEN. Bd. xiii., Heft 2. **G. A. Tawney.** 'Ueber die Wahrnehmung zweier Punkte mittelst des Tastsinnes, mit Rücksicht auf die Frage der Uebung und die Entstehung der Vexirfehler.' [Weber's law that the limina are greater on the long than on the short

axis of the body holds only for the extremities. Valentin's law that the relative liminal values at different parts of the cutaneous surface are approximately equal holds only in a very rough way. Vierordt's law of the relation of the limen to movement does not hold. Volkmann's law that practice of any part practises the symmetrical part is true as far as it goes: really, however, the practice results are more widely diffused. This 'practice' is a process 'of the fulfilment of an autosuggestion in the consciousness of the subject'. The illusory perception of two points (puzzle experiment) is a product of the autosuggestion set up by practice. The way is paved for autosuggestion by "abstraction from the objective impression and its visual complications, and by the aim of making the limen as small and exact as possible".] **M. Arrer.** 'Ueber die Bedeutung der Convergenz und Accommodationsbewegungen für die Tiefenwahrnehmung (II).' [Estimation of depth has a variety of conditions. Yet the results of all experiments point to the constant operation of a single factor. Now the particular form of the limited field of vision was different in all the sets of experiments; the distance-object varied; the brightness varied in Wundt's experiments, though not in Hildebrand's. We have left the movements of convergence and accommodation: and these did, in fact, furnish the measure of comparison for the depth ideas. An exhaustive and extremely careful paper.] **R. von Schubert-Soldern.** 'Erwiderung auf Prof. Wundt's Aufsatz ueber naiven und kritischen Realismus.' [Wundt has wrongly bracketed names together; confused critical with naïve realism, etc. The relation of experience and consciousness; criticism of Wundt and Rickert. The problem of transcendence: "solipsism is epistemologically undeniable, but practically or causally nonsensical". Critique of Wundt's statement that primitive experience is "not the object that lies within, but the object that lies without consciousness".] **W. Wundt.** 'Einige Bemerkungen zu vorstehendem Aufsatz.' [Meets the above objections point by point.]

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Jahrg. xxi., Heft 3. **A. Riehl.** 'Bemerkungen zu dem Problem der Form in der Dichtkunst (I).' [Exposition of A. Hildebrand's theory of art. Objects seen in the far distance with parallel optical axes are presented with a unity and completeness which is impossible in near vision. It is the aim of sculpture and painting to present their objects with the same kind of unity and completeness: to reproduce rather the ideal image than the perception. This unity and completeness must belong not merely to the separate items of a picture or sculpture, but to the picture or sculpture as a whole.] **O. Krebs.** 'Der Wissenschaftsbegriff bei H. Lotze (Schluss).' [Lotze's attitude to the method of Hegel and of the materialists and to universal methods in general. Criticism of Lotze's views on scientific methods. Distinction between common-sense and science according to Lotze. His view of the object of science, as consisting in problems. He demands a preliminary sifting of scientific questions from those which are not scientific, but does not fulfil his own requirement. Indeed, in his *Philosophy of Religion* and elsewhere, he treats as problems of science questions which, on his own showing, ought to be excluded as unscientific. His monistic position irreconcilable with his views on the nature of science.] **R. Willy.** 'Die Krisis in der Psychologie (III).' [Criticism of Brentano's distinction between simple apprehension and judgment, and of his doctrine of intentional in-existence, with special reference to Twardowski's pamphlet on *Inhalt und Gegenstand der Vorstellungen*. Criticism of similar doctrines in Stumpf

and Uphues, and of Brentano's theory of the Intensity of Sensation.] Berichterstattung, Besprechung, etc.

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. Bd. iii., Heft 3. **S. Witasek.** 'Beiträge zur speciellen Dispositionspsychologie.' [Considers the nature of the mental disposition corresponding to the shape-qualities of Ehrenfels, the "fundierte Inhalte" of Meinong. Deals especially with the question how far such dispositions are formed and developed by practice (*Übung*).] **A. Marty.** 'Grammatisches, logisches und psychologisches Subject (*Schluss*).' [Maintains the general coincidence of grammatical and logical subject as against B. Erdmann on the one hand and Wegener, Gabelenz and Lipps on the other.] **H. Schwarz.** 'Uphues' Lehre vom Inhalt und Gegenstand.' [It is pointed out that Uphues treats the abstract form of reference to an object in general as if it were an operative factor determining the reference to specific objects. It is also urged that Uphues makes the specific modification of subjective consciousness in and through which an object is apprehended itself a kind of intermediate object. The writer's own analysis of the cognitive act is good and avoids these fallacies.] **M. Dessoir.** 'Beiträge zur Aesthetik.' [Investigates the nature of "Psychognosis"—that practical knowledge of men's minds which belongs to the man of the world and to the literary artist.] **P. Natorp.** 'Deutsche Schriften zur Erkenntnistheorie, 1894, 95.' **V. Brochard.** 'Compte-rendu des ouvrages philosophiques publiés en France, 1895.'

PHILOSOPHISCHES JAHRBUCH. Bd. x., Heft 2. **V. Frins, S. J.** 'Zum Begriffe des Wunders.' [This, the first of two papers on miracles, attacks the theory that a miracle is, *in every case*, the action of an unknown physical law. Such a law could not, for example, account for the raising of the dead.] **L. Schütz.** 'Der Hypnotismus.' [After having in a previous article described the phenomena of hypnotism, the writer goes on to prove that they are natural, by comparing them with the symptoms of various diseases, and those produced by certain stimulants.] **I. Uebinger.** 'Die mathematischen Schriften des Nik. Cusanus.' [In this biographical article, the rest of the learned Cardinal's mathematical works are noticed. In conclusion, the writer dwells upon his union of theology with mathematics, and his theory of infinitesimal quantities, the germ of modern discoveries.] **A. Linsmeier.** 'Inhalt der chemisch-physikalischen atomhypothese.' [This, the first of two articles, is little more than a compendium of the chemical laws and hypotheses concerning atoms and molecules.]

RIVISTA ITALIANA DI FILOSOFIA. January-February. **L. Credaro.** 'Maurizio Guglielmo Drobisch; Riccardo Enrico Luigi Avenarius.' **G. Cimbali.** 'Per l'Insegnamento della Filosofia del Diritto in Italia.' [An important contribution to the history of the study of the Philosophy of Rights in Italian Universities.] **G. Zuccante.** 'Condotta Buona e Condotta Cattiva secondo lo Spencer.' **N. R. D'Alfonso.** 'Alimento e Educazione organica.' **A. Valdarinni.** 'Esperienza e Discorso in Leonardo da Vinci.' [The work of Roger Bacon did not bear fruit until the time of Leonardi da Vinci, whose method was not merely empirical, but scientific, inasmuch as he did not exclude reason and the application of mathematics from the study of Nature. It is by his Method that Da Vinci was the "glorious precursor" of Bacon. In addition to the interesting account here given of Da Vinci's Physics, there still remains room for his views on Æsthetics and Art.] Bibliografia, etc.

